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Certifications

WBENC: 237019

HUB:

1752439743100-86536

DBE: VN 20657

NCTRCA WFWB38444Y0909

LELAP-02002

NELAP Certifications

Lubbock: T104704219-08-TX El Paso:

T104704221-08-TX

Midland: T104704392-08-TX

LELAP-02003

Kansas E-10317

Analytical and Quality Control Report

Brad Davis Zia Engineering & Environmental 755 S. Telshor Blvd. Suite F-201 Las Cruces, NM, 88011

Report Date: October 1, 2009

Work Order:

9090320

Project Name: HELSTF Diesel Spill Groundwater

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis,

Inc.

			Date	Time	Date
\mathbf{Sample}	Description	Matrix	Taken	Taken	Received
209098	HLSF-0154-DRW-016-0909	water	2009-09-01	13:35	2009-09-02

Comment(s)

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 80 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Notes:

For inorganic analyses, the term MQL should actually read PQL.

Standard Flags

- ${f U}\,$ Not detected. The analyte is not detected above the SDL.
- ${f J}$ Estimated. The analyte is positively identified and the value is approximated between the SDL and MQL.
- B The sample contains less than ten times the concentration found in the method blank.
- JB The analyte is positively identified and the value is approximated between the SDL and MQL.

The sample contains less than ten times the concentration found in the method blank.

The result should be considered non-detect to the SDL.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

Case Narrative

Samples for project HELSTF Diesel Spill Groundwater were received by TraceAnalysis, Inc. on 2009-09-02 and assigned to work order 9090320. Samples for work order 9090320 were received intact without headspace and at a temperature of $5.0 \, \mathrm{deg.} \, \mathrm{C} \, \& \, 19.0 \, \mathrm{deg.} \, \mathrm{C}$.

Samples were analyzed for the following tests using their respective methods.

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
Ag, Total	S 6010B	54079	2009-09-09 at 09:16	63374	2009-09-09 at 12:57
${ m Alkalinity}$	SM 2320B	54231	2009-09-10 at $11:00$	63527	2009-09-10 at 11:00
Al, Total	S_{010B}	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
${ m Ammonia}$	SM 4500-NH3 B,C	54092	2009-09-05 at $16:00$	63370	2009-09-05 at $17:00$
As, Total	S 6010B	54079	2009-09-09 at 09:16	63374	2009-09-09 at $12:57$
Ba, Total	S_{010B}	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
Be, Total	S_{010B}	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
Bromide (IC)	E 300.0	54366	2009-09-03 at $20:48$	63677	2009-09-03 at $20:48$
Ca, Total	S_{010B}	54079	2009-09-09 at $09:16$	63545	2009-09-15 at 08:54
Cd, Total	S 6010B	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
Chloride (IC)	E 300.0	54366	2009-09-03 at $20:48$	63677	2009-09-03 at $20:48$
Chromium, Hexavalent	$\mathrm{SM}\ 3500\text{-Cr}\ \mathrm{B}$	54057	2009-09-02 at 09:46	63330	2009-09-02 at $09:46$
Co, Total	S 6010B	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
Cr, Dissolved	S_{010B}	54154	2009-09-11 at $08:26$	63462	2009-09-11 at 11:56
Cr, Total	S 6010B	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
Cu, Total	S 6010B	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
Explosives (8330)	S 8330-C18	54137	2009-09-04 at 15:00	63425	2009-09-10 at 15:30
Fe, Total	S 6010B	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
Fluoride (IC)	E 300.0	54363	2009-09-16 at $13:48$	63674	2009-09-16 at $13:48$
Hg, Total	S 7470A	54009	2009-09-04 at $13:00$	63280	2009-09-04 at $14:18$
K, Total	S_{010B}	54079	2009-09-09 at $09:16$	63545	2009-09-15 at 08:54
Mg, Total	S_{010B}	54079	2009-09-09 at $09:16$	63545	2009-09-15 at 08:54
Mn, Total	S_{010B}	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
Mo, Total	S_{010B}	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
Na, Total	S 6010B	54079	2009-09-09 at $09:16$	63545	2009-09-15 at 08:54
Ni, Total	S 6010B	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
Nitrate and Nitrite as N	SM 4500-NO3 E	54370	2009-09-17 at 09:43	63681	2009-09-17 at 15:44
O/G	$\to 1664$	54129	2009-09-08 at $09:15$	63411	2009-09-09 at $11:48$
Pb, Total	S_{010B}	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
pН	SM 4500-H+	54064	2009-09-02 at $12:00$	63341	2009-09-02 at $12:00$
P, Total	S 6010B	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
Sb, Total	S 6010B	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
Semivolatiles	S 8270C	54112	2009-09-08 at $15:00$	63393	2009-09-10 at 07:56
Se, Total	S 6010B	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
SO4 (IC)	E 300.0	54366	2009-09-03 at 20:48	63677	2009-09-03 at $20:48$
TDS	SM 2540C	54173	2009-09-03 at $14:20$	63473	2009-09-03 at $14:20$
TKN	E 351.3	54150	2009-09-09 at $11:15$	63441	2009-09-09 at $15:00$
Tl, Total	S 6010B	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$
TOC	SM 5310C	54367	2009-09-17 at $15:01$	63678	2009-09-17 at 15:01
Total Cyanide	SM 4500-CN C, $\rm E$	54106	2009-09-07 at $16:00$	63391	2009-09-07 at 17:45
TPH DRO	Mod. 8015B	54035	2009-09-04 at 15:00	63307	2009-09-07 at 18:00

		Prep	Prep	QC	${ m Analysis}$
Test	Method	Batch	Date	Batch	Date
TPH GRO	S~8015B	53976	2009-09-03 at 14:48	63239	2009-09-03 at $14:48$
V, Total	S_{010B}	54079	2009-09-09 at 09:16	63374	2009-09-09 at $12:57$
Zn, Total	S_{6010B}	54079	2009-09-09 at $09:16$	63374	2009-09-09 at $12:57$

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 9090320 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 5 of 80

HELSTF Diesel Spill Groundwater

Analytical Report

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analytical Method: Analysis: Ag, Total S 6010B Prep Method: S 3010A QC Batch: RR63374 Date Analyzed: 2009-09-09 Analyzed By: Prep Batch: 54079 Sample Preparation: 2009-09-09 Prepared By: KV

SDLMQLMethod Based Based Blank MQLMDL SDL Parameter Result Result Result Units Dilution (Unadjusted) (Unadjusted) Flag Total Silver 0.00111 < 0.00111 < 0.00500< 0.00111mg/L0.00111 0.005

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Al, Total S 3010A Analysis: Analytical Method: S 6010B Prep Method: QC Batch: Date Analyzed: 2009-09-09 Analyzed By: 63374 RRPrep Batch: 54079 Sample Preparation: 2009-09-09 Prepared By: KV

SDLMethod MQLBased Blank MQL MDLBased Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Aluminum 0.09300.0930 < 0.00301 mg/L0.003010.050.00301

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: El Paso

Analysis: Alkalinity Analytical Method: SM 2320BPrep Method: N/AQC Batch: 63527 Date Analyzed: 2009-09-10 Analyzed By: JGPrep Batch: Sample Preparation: Prepared By: 54231JG

SDLMQL Method Based Based Blank MQLMDL Flag Parameter Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Hydroxide Alkalinity mg/L as CaCo3 < 1.00 <1.00 < 1.00 1.00 1 UCarbonate Alkalinity < 1.00 < 1.00 < 1.00mg/L as CaCo3 1 1.00 1 1 Bicarbonate Alkalinity 204204 < 4.00mg/L as CaCo3 4.00 4 4 1 204 mg/L as CaCo3Total Alkalinity 204 < 4.001 4.00 4 4

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Analytical Method: Prep Method: N/AAmmonia SM 4500-NH3 B,C QC Batch: 63370 Date Analyzed: Analyzed By: AH2009-09-05 2009-09-05 Prep Batch: 54092 Sample Preparation: Prepared By: AH

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 6 of 80

HELSTF Diesel Spill Groundwater

		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Ammonia-N	J	0.616	<1.00	< 0.353	mg/L	1	0.353	1	0.353

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: As, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 2009-09-09 63374 Date Analyzed: Analyzed By: RRPrep Batch: Sample Preparation: 2009-09-09 Prepared By: KV54079

SDLMQLMethod Based Based Blank MQLMDL Parameter Result Result Units Dilution SDLFlag Result (Unadjusted) (Unadjusted) Total Arsenic 0.09500.0950< 0.00448 mg/L0.00448 0.01 0.00448 1

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Ba, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RRPrep Batch: Sample Preparation: 2009-09-09 Prepared By: KV54079

SDLMQLMethod MQLMDL Based Based Blank Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Barium 0.007000.00700< 0.00105 0.00105 0.0050.00105 mg/L1

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Be, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RRPrep Batch: 54079 Sample Preparation: 2009-09-09 Prepared By: KV

SDLMQLMethod MQLMDL Based Based Blank Parameter Flag Result Result Result Dilution SDL(Unadjusted) Units (Unadjusted) Total Beryllium < 0.000450 < 0.00200 < 0.000450 mg/L0.0004500.002 0.00045

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: El Paso

Analysis: Bromide (IC) Analytical Method: E 300.0 Prep Method: N/A

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 7 of 80 HELSTF Diesel Spill Groundwater QC Batch: 63677 Date Analyzed: 2009-09-03 Analyzed By: JRPrepared By: Prep Batch: Sample Preparation: 54366 2009-09-03 JRSDLMQLMethod MQLBased Based Blank MDL Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted)

mg/L

5

0.197

0.27

0.0394

Sample: 209098 - HLSF-0154-DRW-016-0909

< 0.197

< 1.35

< 0.197

Bromide

Laboratory: Lubbock Ca, Total S 3010A Analysis: Analytical Method: S 6010B Prep Method: QC Batch: 63545 Date Analyzed: 2009-09-15 Analyzed By: RRPrep Batch: 54079 Sample Preparation: 2009-09-09 Prepared By: KVSDLMQLMethod Based Based Blank MQLMDL

Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Calcium 517 517 < 1.17mg/L10 1.17 0.117 1

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock Analysis: Cd, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: Date Analyzed: Analyzed By: 63374 2009-09-09 RRPrep Batch: Sample Preparation: 540792009-09-09 Prepared By: KVSDL MQLMethod Based Based Blank MQLMDL Parameter Flag Result Result ResultUnits Dilution SDL(Unadjusted) (Unadjusted) Total Cadmium < 0.000303 < 0.00200 < 0.000303 0.0003030.0020.000303mg/L

Sample: 209098 - HLSF-0154-DRW-016-0909

El Paso Laboratory: Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/AQC Batch: 63677 Date Analyzed: 2009-09-03 Analyzed By: JRPrep Batch: Sample Preparation: Prepared By: JR54366 2009-09-03 SDLMQLMethod

Based Based Blank MQL MDLParameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Chloride 2200 2200 < 64.0mg/L100 64.0 1.22 0.6404

Sample: 209098 - HLSF-0154-DRW-016-0909

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 8 of 80

HELSTF Diesel Spill Groundwater

Laboratory: El Paso

Analysis: Chromium, Hexavalent Analytical Method: SM 3500-Cr B Prep Method: N/AQC Batch: Date Analyzed: 2009-09-02 Analyzed By: MD63330 Prep Batch: 54057Sample Preparation: 2009-09-02 Prepared By: JR

SDL MQL Method

Based Based Blank MQL MDL Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Hexavalent Chromium 0.4520.452< 0.00594 mg/L0.00594 0.01 0.00594

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Co, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RRPrep Batch: 54079 Sample Preparation: 2009-09-09 Prepared By: KV

SDL MQL Method

Based MQLMDLBased Blank Flag Parameter Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Cobalt 0.001000.000822 < 0.00200< 0.000822 mg/L 0.002 0.000822

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Analytical Method: Prep Method: S 3005A Cr, Dissolved S 6010B QC Batch: 63462 Date Analyzed: 2009-09-11 Analyzed By: RRPrep Batch: 54154Sample Preparation: 2009-09-11 Prepared By: KV

 $\mathrm{SDL} \quad \mathrm{MQL} \quad \mathrm{Method}$

Based Based Blank MQLMDL SDLResult Parameter Result Result Units Dilution (Unadjusted) (Unadjusted) Flag 0.001 Dissolved Chromium 0.0005830.000583 0.4340.434< 0.000583 mg/L

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Cr, Total Analytical Method: Prep Method: S 3010A S 6010B QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RRPrep Batch: 54079 Sample Preparation: 2009-09-09 Prepared By: KV

SDL MQL Method

		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Chromium		4.65	4.65	< 0.000583	$\mathrm{mg/L}$	1	0.000583	0.005	0.000583

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 9 of 80

HELSTF Diesel Spill Groundwater

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Cu, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63374Date Analyzed: 2009-09-09 Analyzed By: RRPrep Batch: 54079 Sample Preparation: 2009-09-09 Prepared By: KV

SDL MQL Method

Blank MQLBased Based MDL Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Copper 0.01900.0190< 0.000843 mg/L0.000843 0.0050.000843

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Explosives (8330) Analytical Method: S 8330-C18 Prep Method: S 3535A QC Batch: Date Analyzed: 2009-09-10 Analyzed By: DS63425Prep Batch: 54137Sample Preparation: 2009-09-04 Prepared By: DS

		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	$\operatorname{Dilution}$	SDL	(Unadjusted)	(Unadjusted)
HMX	U	< 0.123	< 0.500	< 0.123	$\mu \mathrm{g/L}$	1	0.123	0.5	0.123
RDX	U	< 0.298	< 0.500	< 0.298	$\mu { m g/L}$	1	0.298	0.5	0.298
1,3,5-Trinitrobenzene	U	< 0.339	< 0.500	< 0.339	$\mu { m g/L}$	1	0.339	0.5	0.339
1,3-Dinitrobenzene	U	< 0.389	< 0.500	< 0.389	$\mu { m g/L}$	1	0.389	0.5	0.389
Nitrobenzene	U	< 0.379	< 0.500	< 0.379	$\mu { m g/L}$	1	0.379	0.5	0.379
Tetryl	U	< 0.413	< 0.500	< 0.413	$\mu { m g/L}$	1	0.413	0.5	0.413
TNT	U	< 0.464	< 0.500	< 0.464	$\mu { m g/L}$	1	0.464	0.5	0.464
4-Amino-DNT	U	< 0.319	< 0.500	< 0.319	$\mu { m g/L}$	1	0.319	0.5	0.319
2-Amino-DNT	U	< 0.391	< 0.500	< 0.391	$\mu { m g/L}$	1	0.391	0.5	0.391
2,6-DNT	U	< 0.323	< 0.500	< 0.323	$\mu \mathrm{g/L}$	1	0.323	0.5	0.323
2,4-DNT	U	< 0.366	< 0.500	< 0.366	$\mu \mathrm{g}/\mathrm{L}$	1	0.366	0.5	0.366
2-NT	U	< 0.379	< 0.500	< 0.379	$\mu { m g/L}$	1	0.379	0.5	0.379
4-NT	U	< 0.398	< 0.500	< 0.398	$\mu { m g}/{ m L}$	1	0.398	0.5	0.398
3-NT	U	< 0.346	< 0.500	< 0.346	$\mu \mathrm{g}/\mathrm{L}$	1	0.346	0.5	0.346

					Spike	$\operatorname{Percent}$	$\operatorname{Recovery}$
$\mathbf{Surrogate}$	Flag	Result	Units	Dilution	${f Amount}$	Recovery	Limits
1,2-Dinitrobenzene		1.71	$\mu \mathrm{g/L}$	1	2.50	68	19.8 - 160

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analytical Method: Prep Method: S 3010A Analysis: Fe, Total S 6010B QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RRPrep Batch: 54079Sample Preparation: 2009-09-09 Prepared By: KV

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 10 of 80

HELSTF Diesel Spill Groundwater

		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Iron		9.88	9.88	< 0.000872	mg/L	1	0.000872	0.01	0.000872

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: El Paso

Analysis: Fluoride (IC) Analytical Method: E 300.0 Prep Method: N/AQC Batch: 63674 Date Analyzed: 2009-09-16 Analyzed By: JRPrep Batch: 54363 Sample Preparation: Prepared By: JR2009-09-16 SDLMQLMethod Based Based Blank MQLMDL Parameter Result Units Dilution SDLFlag Result Result (Unadjusted) (Unadjusted) Fluoride < 0.217< 0.850 < 0.217 mg/L0.217 0.17 0.04345

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

N/AAnalysis: Hg, Total Analytical Method: S 7470A Prep Method: QC Batch: TP63280 Date Analyzed: 2009-09-04 Analyzed By: Prep Batch: 54009 Sample Preparation: 2009-09-04 Prepared By: TP

SDLMQL Method Based MQLMDL Based Blank Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Mercury < 0.0000329 < 0.000200 < 0.0000329 0.00003290.0002 3.29e-05mg/L

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: K, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63545 Date Analyzed: 2009-09-15 Analyzed By: RRPrep Batch: 54079 Sample Preparation: 2009-09-09 Prepared By: KV

SDLMQLMethod MQLMDL Based Based Blank Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Potassium $\overline{114}$ $\overline{114}$ < 1.72mg/L10 1.72 0.172

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Mg, Total Analytical Method: S 6010B Prep Method: S 3010A

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 11 of 80 ${\it HELSTF\ Diesel\ Spill\ Groundwater}$ QC Batch: 63545Date Analyzed: 2009 - 09 - 15Analyzed By: RRPrep Batch: Sample Preparation: 2009-09-09 54079Prepared By: KVSDLMQLMethod MQLBased Based Blank MDLParameter Flag ${\bf Result}$ Result ResultUnits Dilution SDL(Unadjusted) (Unadjusted)

mg/L

10

1.60

0.16

< 1.60

Sample: 209098 - HLSF-0154-DRW-016-0909

805

805

Total Magnesium

Laboratory:	$\operatorname{Lubbock}$								
Analysis:	Mn, Total		Analy	tical Method	: S 60	10B		Prep Metho	od: S 3010A
QC Batch:	63374		Date	Analyzed:	2009	9-09-09		Analyzed B	y: RR
Prep Batch:	54079		Samp	le Preparatio	n: 2009	9-09-09		Prepared B	y: KV
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Manga	nese	0.00700	0.00700	< 0.000305	mg/L	1	0.000305	0.0025	0.000305

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory:	Lubbock								
Analysis:	Mo, Total		Analyt	ical Method	: S 60	10B		Prep Metho	od: S 3010A
QC Batch:	63374		Date A	Analyzed:	2009	9-09-09		Analyzed B	y: RR
Prep Batch:	54079		Sample	e Preparatio	n: 2009	9-09-09		Prepared B	y: KV
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Molybo	denum	0.0320	0.0320	< 0.00119	$\mathrm{mg/L}$	1	0.00119	0.01	0.00119

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory:	Lubbock								
Analysis:	Na, Total		Ana	alytical Meth	od: S	6010B		Prep Meth	od: S 3010A
QC Batch:	63545		Dat	e Analyzed:	2	009-09-15		Analyzed E	By: RR
Prep Batch:	54079		San	iple Prepara	tion: 2	009-09-09		Prepared E	By: KV
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	$\operatorname{Dilution}$	SDL	(Unadjusted)	(Unadjusted)
Total Sodium	1	2640	2640	< 5.00	mg/L	100	5.00	1	0.05

Sample: 209098 - HLSF-0154-DRW-016-0909

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 12 of 80

HELSTF Diesel Spill Groundwater

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Ni, Total 63374 54079		D	nalytical Met ate Analyzed ample Prepar	l:	S 6010B 2009-09-09 2009-09-09		Prep Methor Analyzed E Prepared E	By: RR
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Nickel		0.102	0.102	< 0.00121	m mg/L	1	0.00121	0.005	0.00121

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Nitrate and Nitrite as N Analytical Method: SM 4500-NO3 E Prep Method: N/AQC Batch: 63681 Date Analyzed: 2009-09-17 Analyzed By: KVPrep Batch: 54370Sample Preparation: 2009-09-17 Prepared By: KV

SDLMQLMethod Based MQLMDLBased Blank Flag Parameter Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) 200 7.00 Nitrate and Nitrite as N $\overline{115}$ $\overline{115}$ < 7.00 mg/L0.1 0.035

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: El Paso

Analysis: O/G Analytical Method: Prep Method: E 1664 N/AQC Batch: 63411 Date Analyzed: 2009-09-09 Analyzed By: MDPrep Batch: 54129Sample Preparation: 2009-09-08 Prepared By: MD

SDLMQLMethod Based Based Blank MQLMDLFlag Result SDL Parameter Result Result Units Dilution (Unadjusted) (Unadjusted) Oil and Grease 3.60 < 3.60< 5.00< 3.60mg/L5 3.6

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Prep Method: Analysis: P, Total Analytical Method: S 6010B S 3010A QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RRPrep Batch: 54079 Sample Preparation: 2009-09-09 Prepared By: KV

SDLMQLMethod Based Based Blank MQLMDLParameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Phosphorous 0.1430.143< 0.00289mg/L0.002890.0250.00289

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 13 of 80

HELSTF Diesel Spill Groundwater

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Pb. Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RRPrep Batch: 54079 Sample Preparation: 2009-09-09 Prepared By: KV

> SDLMQLMethod

Blank MQLBased Based MDL Parameter Result Result Result Units Dilution SDL(Unadjusted) Flag (Unadjusted) Total Lead < 0.00326 < 0.00500 < 0.00326 mg/L 0.00326 0.0050.00326

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: El Paso

Analysis: рН Analytical Method: SM 4500-H+Prep Method: N/AQC Batch: JG63341 Date Analyzed: 2009-09-02 Analyzed By: Prep Batch: 54064Sample Preparation: 2009-09-02 Prepared By: JR

RL

Parameter Flag Result Dilution RLUnits 7.19pHs.u. 1

Sample: 209098 - HLSF-0154-DRW-016-0909

Lubbock Laboratory:

Analysis: Sb. Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RRPrep Batch: 54079 Sample Preparation: 2009-09-09 Prepared By: KV

mg/L

MDL

0.0044

0.02

0.00440

SDL MQLMethod Based Based Blank MQLFlag SDLParameter Result Result Result Units Dilution (Unadjusted) (Unadjusted)

< 0.00440

Sample: 209098 - HLSF-0154-DRW-016-0909

0.0870

0.0870

Laboratory: Lubbock

Total Antimony

Analysis: Se, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RRPrep Batch: 54079Sample Preparation: 2009-09-09 KVPrepared By:

SDLMQLMethod Based Based MQLMDL Blank Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Selenium 0.08500.0850< 0.00508 mg/L0.005080.020.00508

HELSTF Diesel Spill Groundwater

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock Analytical Method: Analysis: Semivolatiles S 8270CPrep Method: S 3510C QC Batch: 63393 Date Analyzed: Analyzed By: 2009-09-10 MNPrep Batch: 54112 Sample Preparation: 2009-09-08 Prepared By: MN

		SDL	MQL	Method				
		Based	Based	Blank			MQL	MDL
Parameter	Flag	Result	Result	Result Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Pyridine	U^{-}	< 0.000560	< 0.00461	< 0.000560 mg/L	0.922	0.000560	0.005	0.000608
N-Nitrosodimethylamine	U	< 0.000509	< 0.00461	$< 0.000509 \mathrm{mg/L}$	0.922	0.000509	0.005	0.000552
2-Picoline	U	< 0.000376	< 0.00461	< 0.000376 mg/L	0.922	0.000376	0.005	0.000408
Methyl methanesulfonate	U	< 0.000323	< 0.00461	< 0.000323 mg/L	0.922	0.000323	0.005	0.00035
Ethyl methanesulfonate	U	< 0.000413	< 0.00461	< 0.000413 mg/L	0.922	0.000413	0.005	0.000448
Phenol	U	< 0.000469	< 0.00461	$< 0.000469 \mathrm{mg/L}$	0.922	0.000469	0.005	0.000509
Aniline	U	< 0.000637	< 0.00461	$< 0.000637 \mathrm{mg/L}$	0.922	0.000637	0.005	0.000691
bis(2-chloroethyl)ether	U	< 0.000406 <	< 0.00461	< 0.000406 mg/L	0.922	0.000406	0.005	0.00044
2-Chlorophenol	U	< 0.000495	< 0.00461	< 0.000495 mg/L	0.922	0.000495	0.005	0.000537
1,3-Dichlorobenzene (meta)	U	< 0.000407	< 0.00461	$< 0.000407 \mathrm{mg/L}$	0.922	0.000407	0.005	0.000441
1,4-Dichlorobenzene (para)	U	< 0.000406	< 0.00461	< 0.000406 mg/L	0.922	0.000406	0.005	0.00044
Benzyl alcohol	U	< 0.000496	< 0.00461	< 0.000496 mg/L	0.922	0.000496	0.005	0.000538
1,2-Dichlorobenzene (ortho)	U	< 0.000408	< 0.00461	$< 0.000408 \mathrm{mg/L}$	0.922	0.000408	0.005	0.000443
2-Methylphenol	U	< 0.000669	< 0.00461	$< 0.000669 \mathrm{mg/L}$	0.922	0.000669	0.005	0.000726
bis(2-chloroisopropyl)ether	U	< 0.000464	< 0.00461	< 0.000464 mg/L	0.922	0.000464	0.005	0.000503
4-Methylphenol / 3-Methylphenol	U	< 0.000472	< 0.00461	< 0.000472 mg/L	0.922	0.000472	0.005	0.000512
N-Nitrosodi-n-propylamine	U	< 0.000675	< 0.00461	< 0.000675 mg/L	0.922	0.000675	0.005	0.000732
$\operatorname{Hexachloroethane}$	U	< 0.000467	< 0.00461	$< 0.000467 \mathrm{mg/L}$	0.922	0.000467	0.005	0.000507
$egin{array}{c} { m Acetophenone} \end{array}$	U	< 0.000391	< 0.00461	<0.000391 mg/L	0.922	0.000391	0.005	0.000424
Nitrobenzene	U	< 0.000429	< 0.00461	< 0.000429 mg/L	0.922	0.000429	0.005	0.000465
N-Nitrosopiperidine	U	< 0.000408	< 0.00461	$< 0.000408 \mathrm{mg/L}$	0.922	0.000408	0.005	0.000443
Isophorone	U	< 0.000571	< 0.00461	< 0.000571 mg/L	0.922	0.000571	0.005	0.000619
2-Nitrophenol	U	< 0.000374	< 0.00461	< 0.000374 mg/L	0.922	0.000374	0.005	0.000406
2,4-Dimethylphenol	U	< 0.000440	< 0.00461	< 0.000440 mg/L	0.922	0.000440	0.005	0.000477
bis(2-chloroethoxy) methane	U	< 0.000398	< 0.00461	$< 0.000398 \mathrm{mg/L}$	0.922	0.000398	0.005	0.000432
2,4-Dichlorophenol	U	< 0.000369	< 0.00461	$< 0.000369 \mathrm{mg/L}$	0.922	0.000369	0.005	0.0004
1,2,4-Trichlorobenzene	U	< 0.000372	< 0.00461	< 0.000372 mg/L	0.922	0.000372	0.005	0.000404
Benzoic acid	U	< 0.00150	< 0.00461	$< 0.00150 \mathrm{mg/L}$	0.922	0.00150	0.005	0.00163
Naphthalene	U	< 0.000451	< 0.00461	<0.000451 mg/L	0.922	0.000451	0.005	0.000489
a,a-Dimethylphenethylamine	U	< 0.00119	< 0.00461	$< 0.00119 \mathrm{mg/L}$	0.922	0.00119	0.005	0.00129
4-Chloroaniline	U	< 0.000348	< 0.00461	$< 0.000348 \mathrm{mg/L}$	0.922	0.000348	0.005	0.000378
2,6-Dichlorophenol	U	< 0.000446	< 0.00922	< 0.000446 mg/L	0.922	0.000446	0.01	0.000484
${ m Hexachlorobutadiene}$	U	< 0.000477	< 0.00461	$< 0.000477 \mathrm{mg/L}$	0.922	0.000477	0.005	0.000517
N-Nitroso-di-n-butylamine	U	< 0.000605	< 0.00461	< 0.000605 mg/L	0.922	0.000605	0.005	0.000656
4-Chloro-3-methylphenol	U	< 0.000481	< 0.00461	< 0.000481 mg/L	0.922	0.000481	0.005	0.000522
$2 ext{-Methylnaphthalene}$	U	< 0.000390	< 0.00461	< 0.000390 mg/L	0.922	0.000390	0.005	0.000423
$1 ext{-} ext{Methylnaphthalene}$	U	< 0.000456	< 0.00461	< 0.000456 mg/L	0.922	0.000456	0.005	0.000495
1,2,4,5-Tetrachlorobenzene	U	< 0.000564	< 0.00461	< 0.000564 mg/L	0.922	0.000564	0.005	0.000612
${\it Hexachlorocyclopenta}$ diene	U	< 0.000514	< 0.00461	< 0.000514 mg/L	0.922	0.000514	0.005	0.000558
2,4,6-Trichlorophenol	U	< 0.000732	< 0.00922	< 0.000732 mg/L	0.922	0.000732	0.01	0.000794

 $continued \dots$

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 $sample\ 209098\ continued\ \dots$

		SDL	MQL	Method				
		Based	Based	Blank			MQL	MDL
Parameter	Flag		Result	Result Unit	s Dilution	SDL	-	(Unadjusted)
2,4,5-Trichlorophenol	\overline{v}			< 0.000769 mg/		0.000769		0.000834
2-Chloronaphthalene	\boldsymbol{U}			<0.000384 mg/		0.000384		0.000416
1-Chloronaphthalene	\boldsymbol{U}			<0.000439 mg/		0.000439		0.000476
2-Nitroaniline	\boldsymbol{U}			<0.000701 mg/		0.000701	0.005	0.00076
Dimethylphthalate	\boldsymbol{U}			< 0.000593 mg/		0.000593		0.000643
Acenaphthylene	U			<0.000540 mg/		0.000540		0.000586
2,6-Dinitrotoluene	U			<0.000590 mg/		0.000590		0.00064
3-Nitroaniline	U			<0.000665 mg/		0.000665		0.000721
${ m Acenaphthene}$	U			< 0.000390 mg/		0.000390		0.000423
2,4-Dinitrophenol	U			<0.000203 mg/		0.000203		0.00022
Dibenzofuran	U			< 0.000376 mg/		0.000376		0.000408
Pentachlorobenzene	U			<0.000526 mg/		0.000526		0.000571
4-Nitrophenol	U			< 0.00170 mg/		0.00170	0.025	0.00185
2,4-Dinitrotoluene	U			<0.000840 mg/		0.000840		0.000911
1-Naphthylamine	U			<0.000634 mg/		0.000634		0.000688
2,3,4,6-Tetrachlorophenol	U			<0.000521 mg/		0.000521	0.01	0.000565
2-Naphthylamine	U			<0.000644 mg/		0.000644		0.000699
Fluorene	U			<0.000597 mg/		0.000597		0.000648
4-Chlorophenyl-phenylether	U			<0.000571 mg/		0.000571	0.005	0.000619
Diethylphthalate	U			< 0.000763 mg/		0.000763		0.000828
4-Nitroaniline	U	< 0.000647	< 0.00461	< 0.000647 mg/		0.000647		0.000702
Diphenylhydrazine	U	< 0.000606	< 0.00461	< 0.000606 mg/	L = 0.922	0.000606	0.005	0.000657
4,6-Dinitro-2-methylphenol	U	< 0.00182	< 0.00461	<0.00182 mg/	L = 0.922	0.00182	0.005	0.00198
Diphenylamine	U	< 0.000406	< 0.00461	< 0.000406 mg/	L = 0.922	0.000406	0.005	0.00044
4-Bromophenyl-phenylether	U	< 0.000507	< 0.00461	< 0.000507 mg/	L = 0.922	0.000507	0.005	0.00055
Phenacetin	U	< 0.000558	< 0.00461	< 0.000558 mg/	L = 0.922	0.000558	0.005	0.000605
${\it Hexachlorobenzene}$	U	< 0.000466	< 0.00461	< 0.000466 mg/	L = 0.922	0.000466	0.005	0.000506
4-Aminobiphenyl	U	< 0.000486	< 0.00461	< 0.000486 mg/	L = 0.922	0.000486	0.005	0.000527
Pentachlorophenol	U	< 0.000401	< 0.00922	< 0.000401 mg/	L = 0.922	0.000401	0.01	0.000435
${ m Anthracene}$	U	< 0.000395	< 0.00461	< 0.000395 mg/	L = 0.922	0.000395	0.005	0.000428
${ m Pentachloronitrobenzene}$	U	< 0.000376	< 0.00461	< 0.000376 mg/	L = 0.922	0.000376	0.005	0.000408
Pronamide	U	< 0.000439	< 0.00461	< 0.000439 mg/	L = 0.922	0.000439	0.005	0.000476
${ m Phenanthrene}$	U	< 0.000505	< 0.00461	< 0.000505 mg/	L = 0.922	0.000505	0.005	0.000548
${ m Di} ext{-n-butylpht}$ halate	U	< 0.000445	< 0.00461	< 0.000445 mg/	L = 0.922	0.000445	0.005	0.000483
Fluoranthene	U	< 0.000583	< 0.00461	$< 0.000583 \mathrm{mg}/$	L = 0.922	0.000583	0.005	0.000632
Benzidine	U	< 0.00219	< 0.0230	$< 0.00219 \mathrm{mg}/$	L = 0.922	0.00219	0.025	0.00238
Pyrene	1 <i>U</i>			$< 0.000667 \mathrm{mg}/$		0.000667	0.005	0.000723
${\it p-Dimethylaminoazobenzene}$	U			< 0.000832 mg/		0.000832	0.005	0.000902
${\bf Butylbenzylphthalate}$	U	< 0.000410	< 0.00461	$< 0.000410 \; \mathrm{mg}/$		0.000410	0.005	0.000445
$\operatorname{Benzo}(\operatorname{a})\operatorname{anthracene}$	2 U			${<}0.000486~\rm{mg}/$		0.000486		0.000527
3,3-Dichlorobenzidine	U			< 0.00109 mg/		0.00109	0.005	0.00118
Chrysene	U			< 0.000588 mg/		0.000588		0.000638
bis(2-ethylhexyl)phthalate	U	< 0.000517	< 0.00461	$< 0.000517 \mathrm{mg}/$	L = 0.922	0.000517	0.005	0.000561

 $continued \dots$

 $^{^{1}}$ Concentration biased low. 2 Concentration biased low.

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sample 209098 continued . . .

		SDL	MQL	Method				
		Based	Based	Blank			MQL	MDL
Parameter	Flag	Result	Result	Result Units	Dilution	SDL	(Unadjusted	l) (Unadjusted)
Di-n-octylphthalate	U	< 0.00107	< 0.00461	$< 0.00107 \mathrm{mg/L}$	0.922	0.00107	0.005	0.00116
Benzo(b)fluoranthene	3 U	< 0.000810	< 0.00461	${<}0.000810\:\mathrm{mg/L}$	0.922	0.000810	0.005	0.000879
Benzo(k)fluoranthene	U	< 0.000779	< 0.00461	${<}0.000779\:{\rm mg/L}$	0.922	0.000779	0.005	0.000845
7,12-Dimethylbenz(a)anthracene	U	< 0.000940	< 0.00461	${<}0.000940\:{\rm mg/L}$	0.922	0.000940	0.005	0.00102
Benzo(a)pyrene	U	< 0.00154	< 0.00461	< 0.00154 mg/L	0.922	0.00154	0.005	0.00167
3-Methylcholanthrene	U	< 0.000837	< 0.00461	$< 0.000837 \mathrm{mg/L}$	0.922	0.000837	0.005	0.000908
Dibenzo(a,j)acridine	U	< 0.00119	< 0.00461	$< 0.00119 \mathrm{mg/L}$	0.922	0.00119	0.005	0.00129
Indeno(1,2,3-cd)pyrene	U	< 0.000795	< 0.00461	< 0.000795 mg/L	0.922	0.000795	0.005	0.000862
${ m Dibenzo}({ m a,h}) { m anthracene}$	U	< 0.000746	< 0.00461	< 0.000746 mg/L	0.922	0.000746	0.005	0.000809
$\mathrm{Benzo}(\mathrm{g,h,i})\mathrm{perylene}$	U	< 0.000875	< 0.00461	< 0.000875 mg/L	0.922	0.000875	0.005	0.000949

CDI

					\mathbf{S} pike	$\operatorname{Percent}$	Recovery
$\mathbf{Surrogate}$	Flag	Result	Units	Dilution	${f Amount}$	Recovery	Limits
2-Fluorophenol		0.0261	$\mathrm{mg/L}$	0.922	0.0800	33	10 - 53.1
${ m Phenol-d5}$		0.0154	${ m mg/L}$	0.922	0.0800	19	10 - 36.9
${ m Nitrobenzene-d5}$		0.0426	${ m mg/L}$	0.922	0.0800	53	23.8 - 108
2-Fluorobiphenyl		0.0444	${ m mg/L}$	0.922	0.0800	56	15.9 - 127
2,4,6-Tribromophenol		0.0531	${ m mg/L}$	0.922	0.0800	66	10 - 123
Terphenyl-d14		0.0455	${ m mg/L}$	0.922	0.0800	57	17.2 - 160

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: El Paso Analysis: SO4 (IC) Analytical Method: E 300.0Prep Method: N/A QC Batch: Analyzed By: 63677Date Analyzed: 2009-09-03 JRPrep Batch: Sample Preparation: 2009-09-03 Prepared By: 54366JRSDLMQLMethod

	Bas	$_{ m ed}$ Based	Blank				MQL	MDL
Parameter F	Flag Resu	lt Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
$\operatorname{Sulfate}$	56 4	10 5640	<252	${ m mg/L}$	500	252	1.33	0.5038

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: El Paso

Analysis: TDS Analytical Method: $\rm SM~2540C$ Prep Method: N/AQC Batch: 63473Date Analyzed: 2009-09-03 Analyzed By: MDPrep Batch: Sample Preparation: 2009-09-03 Prepared By: 54173MD

³Concentration biased low.

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 17 of 80

HELSTF Diesel Spill Groundwater

-									
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Dissolved Solids		13600	13600	< 5.00	mg/L	1	5.00		5

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: TKN Analytical Method: E 351.3Prep Method: N/AQC Batch: 2009-09-09 63441 Date Analyzed: Analyzed By: AHPrep Batch: Sample Preparation: 2009-09-09 Prepared By: 54150AH

SDL MQL Method

Based Based Blank MQLMDL Result Result SDLParameter Flag Result Units Dilution (Unadjusted) (Unadjusted) Total Kjeldahl Nitrogen - N < 2.45<10.0 < 2.45mg/L $\overline{2.45}$ 10 2.45 1

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Tl, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63374 Analyzed By: Date Analyzed: 2009-09-09 RRPrep Batch: Sample Preparation: 2009-09-09 Prepared By: KV54079

SDL MQL Method Based Based Blank

MQLMDL Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Thallium < 0.00488 < 0.05000.00488 0.05 0.00488 < 0.00488 mg/L1

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: TOC Analytical Method: SM 5310C Prep Method: N/A QC Batch: 63678 Date Analyzed: 2009-09-17 Analyzed By: KVPrep Batch: 54367 Sample Preparation: 2009-09-17 Prepared By: KV

SDL MQL Method

MQL MDL Based Based Blank Parameter Result Result Result Dilution SDL(Unadjusted) Flag Units (Unadjusted) Total Organic Carbon 1.16 1.16< 0.401mg/L0.4010.401

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: Total Cyanide Analytical Method: SM 4500-CN C,E Prep Method: N/A

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HELSTF Diesel Spill Groundwater

QC Batch: 63391 Date Analyzed: 2009-09-07 Analyzed By: AHPrep Batch: 54106 Sample Preparation: 2009-09-07 Prepared By: AHSDLMQLMethod Based Based Blank MQLMDL SDL Parameter Flag Result Result Result Units Dilution (Unadjusted) (Unadjusted) Total Cyanide < 0.0110 < 0.0150< 0.0110mg/L0.0110 0.015 0.011

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: TPH DRO Analytical Method: Mod. 8015B Prep Method: N/AQC Batch: 63307 Date Analyzed: 2009-09-07 Analyzed By: AWPrep Batch: 54035 Sample Preparation: 2009-09-04 Prepared By: AW

SDLMQLMethod Based Based Blank MQLMDL Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) $\overline{\mathrm{DRO}}$ < 0.876< 5.00< 0.876mg/L0.876 5 0.876 1

Spike Percent Recovery Surrogate Flag Result Units Dilution Amount Recovery Limits n-Triacontane 11.5 mg/L 10.0 115 57.3 - 151

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5030B QC Batch: 63239 Date Analyzed: 2009-09-03 Analyzed By: ERPrep Batch: Sample Preparation: ER539762009-09-03 Prepared By:

SDLMQLMethod MDLBased Based Blank MQLParameter Result Result Result Units Dilution SDLFlag (Unadjusted) (Unadjusted) GRO < 0.152< 0.200< 0.152mg/L0.1520.20.152

Spike Percent Recovery Surrogate Flag Result Units Dilution Amount Recovery Limits Trifluorotoluene (TFT) 0.111 mg/L0.100 111 70.8 - 112 1 4-Bromofluorobenzene (4-BFB) 0.1081 0.100108 80 - 109 mg/L

Sample: 209098 - HLSF-0154-DRW-016-0909

Laboratory: Lubbock

V, Total S 3010A Analysis: Analytical Method: S 6010B Prep Method: QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RRPrep Batch: 2009-09-09 54079 Sample Preparation: Prepared By: KV

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HELSTF Diesel Spill Groundwater

		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Vanadium		0.214	0.214	< 0.000426	mg/L	1	0.000426	0.005	0.000426

Sample: 209098 - HLSF-0154-DRW-016-0909

Result

< 0.000465

Laboratory: Lubbock

Flag

Analysis: Zn, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63374 2009-09-09 Analyzed By: Date Analyzed: RRPrep Batch: 54079 Sample Preparation: 2009-09-09 Prepared By: KVSDL MQLMethodBased Based Blank MQLMDL

Result

< 0.000465

Units

mg/L

Dilution

1

SDL

0.000465

(Unadjusted)

0.005

(Unadjusted)

0.000465

Result

< 0.00500

Method Blank (1)

Parameter

Total Zinc

QC Batch: 63239 Date Analyzed: 2009-09-03 Analyzed By: ER
Prep Batch: 53976 QC Preparation: 2009-09-03 Prepared By: ER

Surrogate Flag Result Units Dilution Amount Recovery Limits Trifluorotoluene (TFT) 70.8 - 1120.103mg/L1 0.100103 80 - 109 4-Bromofluorobenzene (4-BFB) 0.100mg/L1 0.100100

Method Blank (1)

QC Batch: 63280 Date Analyzed: 2009-09-04 Analyzed By: TP
Prep Batch: 54009 QC Preparation: 2009-09-04 Prepared By: TP

Method Blank (1)

QC Batch: 63307 Date Analyzed: 2009-09-07 Analyzed By: AW
Prep Batch: 54035 QC Preparation: 2009-09-04 Prepared By: AW

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Danamatan		Floor	Dogul	_	IInita		Repor	
Parameter DRO		Flag	Resul		$\frac{\rm Units}{\rm mg/L}$		Lim 0.8	
DICO			<u> </u>	<u> </u>	1115/ L		0.0	10
					Spike	Percent	Reco	very
Surrogate	Flag	Result	Units	$\operatorname{Dilution}$	${ m Amount}$	Recovery	Lim	$_{ m nits}$
n-Triacontane		8.25	m mg/L	1	10.0	82	57.3 -	- 151
Method Blank (1))							
QC Batch: 63330			Date Analyzed:	2009-09-02		Analy	zed By:	MD
Prep Batch: 54057			QC Preparation:	2009-09-02				MD
•			• •			•	v	
Danamatan		₽lo		Dogult	TT.	i.	Repor	
Parameter Hexavalent Chromiu	***	Fla		Result (0.00594		nits s/T	0.00	
nexavaiem Chromiu	.111			.0.00394	11118	g/L	0.00	994
Method Blank (1))							
QC Batch: 63370			Date Analyzed:	2009-09-05		Analy	zed By:	AH
Prep Batch: 54092			QC Preparation:	2009-09-05		Prepa	red By:	AH
							Repo	ntina
Parameter		Flag	Resu	ılt	Units		Lim	_
Ammonia-N		1145	<0.3		$\frac{\rm cmcs}{\rm mg/L}$		0.3	
			(0.00		8/ 12		0.0	
Method Blank (1))							
QC Batch: 63374			Date Analyzed:	2009-09-09		v lea A	zed By:	RR
Prep Batch: 54079			QC Preparation:	2009-09-09			-	KV
110p 2000m 010,0			QC 1 Toparacion.			110pa	10a 2 j.	
							Repo	
Parameter		Flag	Res		Units		Lim	
Total Silver			< 0.001	.11	mg/L	ı	0.00	111
Method Blank (1))							
QC Batch: 63374			Date Analyzed:	2009-09-09		Analv	zed By:	RR
Prep Batch: 54079			QC Preparation:			-	-	KV
							Repo	
Parameter		Flag		Result	Unit		Lim	
Total Aluminum			<0.0	00301	mg/	L	0.00	301

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HELSTF Diesel Spill Groundwater

		HELSTF Diesel Spill Groundwat	er	
Method Blank (1)				
QC Batch: 63374 Prep Batch: 54079		Date Analyzed: 2009-09-09 QC Preparation: 2009-09-09		Analyzed By: RR
Prep Batch: 54079		QC Preparation: 2009-09-09		Prepared By: KV
Parameter	Flag	Result	Units	Reporting Limits
Total Arsenic	1 145	<0.00448	mg/L	0.00448
Method Blank (1)				
QC Batch: 63374		Date Analyzed: 2009-09-09		Analyzed By: RR
Prep Batch: 54079		QC Preparation: 2009-09-09		Prepared By: KV
				Reporting
Parameter	Flag	Result	Units	Limits
Total Barium		< 0.00105	mg/L	0.00105
Method Blank (1)				
QC Batch: 63374		Date Analyzed: 2009-09-09		Analyzed By: RR
Prep Batch: 54079		QC Preparation: 2009-09-09		Prepared By: KV
Parameter	Flag	Result	Units	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
Total Beryllium		< 0.000450	mg/L	0.00045
Method Blank (1)				
QC Batch: 63374		Date Analyzed: 2009-09-09		Analyzed By: RR
Prep Batch: 54079		QC Preparation: 2009-09-09		Prepared By: KV
Parameter	Flag	Result	Units	$\begin{array}{c} {\rm Reporting} \\ {\rm Limits} \end{array}$
Total Cadmium	Tag	<0.000303	mg/L	0.000303
Method Blank (1)				
QC Batch: 63374		Date Analyzed: 2009-09-09		Analyzed By: RR
Prep Batch: 54079		QC Preparation: 2009-09-09		Prepared By: KV
Parameter	Flag	Result	Units	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
Total Cobalt	0	< 0.000822	$\frac{\rm mg/L}$	0.000822

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HELSTF Diesel Spill Groundwater

		HELSTF Diesel Spill Groundwat	er	
Method Blank (1)				
QC Batch: 63374 Prep Batch: 54079		Date Analyzed: 2009-09-09 QC Preparation: 2009-09-09		Analyzed By: RR Prepared By: KV
				Reporting
Parameter	Flag	Result	Units	Limits
Total Chromium		<0.000583	m mg/L	0.000583
Method Blank (1)				
QC Batch: 63374		Date Analyzed: 2009-09-09		Analyzed By: RR
Prep Batch: 54079		QC Preparation: 2009-09-09		Prepared By: KV
				Reporting
Parameter	Flag	Result	Units	Limits
Total Copper		< 0.000843	$\mathrm{mg/L}$	0.000843
Method Blank (1)				
QC Batch: 63374		Date Analyzed: 2009-09-09		Analyzed By: RR
Prep Batch: 54079		QC Preparation: 2009-09-09		Prepared By: KV
Parameter	Flag	Result	Units	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
Total Iron		< 0.000872	$\mathrm{mg/L}$	0.000872
Method Blank (1)				
QC Batch: 63374		Date Analyzed: 2009-09-09		Analyzed By: RR
Prep Batch: 54079		QC Preparation: 2009-09-09		Prepared By: KV
Parameter	Flag	Result	Units	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
Total Manganese	Tag	<0.000305	mg/L	0.000305
Method Blank (1) QC Batch: 63374		<0.000305 Date Analyzed: 2009-09-09	mg/L	0.000305 Analyzed By: RR
Prep Batch: 54079		QC Preparation: 2009-09-09		Prepared By: KV Reporting
Parameter	Flag	Result	Units	Limits
Total Malrib danum		<0.00110		0.00110

< 0.00119

mg/L

Total Molybdenum

0.00119

Work Order: 9090320
HELSTF Diesel Spill Groundwate Report Date: October 1, 2009 Page Number: 23 of 80

		HELSTF Diesel Spill Groundwat	er	
Method Blank (1)				
QC Batch: 63374 Prep Batch: 54079		Date Analyzed: 2009-09-09 QC Preparation: 2009-09-09		Analyzed By: RR Prepared By: KV
D.	TO!	D 1	TT **	Reporting
Parameter Total Nickel	Flag	Result <0.00121	$\frac{\rm Units}{\rm mg/L}$	$\frac{\text{Limits}}{0.00121}$
TOTAL INTERES		V0.00121	mg/ L	0.00121
Method Blank (1)				
QC Batch: 63374		Date Analyzed: 2009-09-09		Analyzed By: RR
Prep Batch: 54079		QC Preparation: 2009-09-09		Prepared By: KV
				Reporting
Parameter Total Phosphorous	Flag	Result <0.00289	Units	Limits 0.00289
Total I hosphorous		V0.00209	m mg/L	0.00203
Method Blank (1)				
QC Batch: 63374		Date Analyzed: 2009-09-09		Analyzed By: RR
Prep Batch: 54079		QC Preparation: 2009-09-09		Prepared By: KV
Parameter	Flag	Result	Units	$\begin{array}{c} {\rm Reporting} \\ {\rm Limits} \end{array}$
Total Lead		< 0.00326	m mg/L	0.00326
Method Blank (1)				
QC Batch: 63374		Date Analyzed: 2009-09-09		Analyzed By: RR
Prep Batch: 54079		QC Preparation: 2009-09-09		Prepared By: KV
Parameter	Flag	Result	Units	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
Total Antimony	11008	<0.00440	$\frac{\rm mg/L}$	0.0044
Method Blank (1) QC Batch: 63374 Prep Batch: 54079		Date Analyzed: 2009-09-09 QC Preparation: 2009-09-09		Analyzed By: RR Prepared By: KV
D. 4	T)	D. U	TT '	Reporting
Parameter Tetal Colonium	Flag	Result	Units	Limits

< 0.00508

mg/L

0.00508

Total Selenium

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 24 of 80

HELSTF Diesel Spill Groundwater

		HELSTF Diesel	Spill Groundwate	er	
Method Blank (1)					
QC Batch: 63374 Prep Batch: 54079		Date Analyzed: QC Preparation:	2009-09-09 2009-09-09		Analyzed By: RR Prepared By: KV
					Reporting
Parameter	Flag	${ m R}\epsilon$	esult	Units	Limits
Total Thallium		< 0.00	0488	m mg/L	0.00488
Method Blank (1)					
QC Batch: 63374 Prep Batch: 54079		Date Analyzed: QC Preparation:	2009-09-09 2009-09-09		Analyzed By: RR Prepared By: KV
Parameter	Flag	T.	tesult	Units	$\begin{array}{c} {\rm Reporting} \\ {\rm Limits} \end{array}$
Total Vanadium	rag	< 0.00		mg/L	0.000426
Method Blank (1)					
QC Batch: 63374 Prep Batch: 54079		Date Analyzed: QC Preparation:	2009-09-09 2009-09-09		Analyzed By: RR Prepared By: KV
Parameter	Flag	Resi	ılt	Units	$rac{ m Reporting}{ m Limits}$
Total Zinc		< 0.0004		$\mathrm{mg/L}$	0.000465
Method Blank (1)					
QC Batch: 63391 Prep Batch: 54106		Date Analyzed: QC Preparation:	2009-09-07 2009-09-07		Analyzed By: AH Prepared By: AH
Parameter	Flag	Res	ult	${ m Units}$	Reporting Limits
Total Cyanide		< 0.03	110	m mg/L	0.011
Method Blank (1)					
QC Batch: 63393 Prep Batch: 54112		Date Analyzed: QC Preparation:	2009-09-10 2009-09-08		Analyzed By: MN Prepared By: MN
					Reporting
Parameter		Flag	${ m Result}$	Units	Limits
Parameter Pyridine N-Nitrosodimethylamine		Flag	Result <0.000608 <0.000552	$\begin{array}{c} \text{Units} \\ \text{mg/L} \\ \text{mg/L} \end{array}$	Limits 0.000608 0.000552

method blank continued . . .

Flag	Result < 0.000408	$\frac{\rm Units}{\rm mg/L}$	Limits
	< 0.000408	mø/L	
		1115/L	0.000408
	< 0.000350	m mg/L	0.00035
	< 0.000448	m mg/L	0.000448
	< 0.000509	m mg/L	0.000509
	< 0.000691	m mg/L	0.000691
	< 0.000440	m mg/L	0.00044
	< 0.000537	m mg/L	0.000537
	< 0.000441	m mg/L	0.000441
	< 0.000440	m mg/L	0.00044
	< 0.000538		0.000538
	< 0.000443	= -	0.000443
			0.000726
		= -	0.000503
			0.000512
			0.000732
			0.000507
			0.000424
			0.000465
			0.000443
			0.000443
			0.000406
		= -	0.000477
			0.000477
			0.000432 0.0004
			0.000404
			0.00163
			0.000489
			0.00129
			0.000378
			0.000484
			0.000517
			0.000656
			0.000522
			0.000423
			0.000495
		m mg/L	0.000612
		m mg/L	0.000558
	< 0.000794	m mg/L	0.000794
	< 0.000834	m mg/L	0.000834
	< 0.000416	m mg/L	0.000416
	< 0.000476	m mg/L	0.000476
	< 0.000760	m mg/L	0.00076
	< 0.000643		0.000643
	< 0.000586		0.000586
			0.00064
			0.000721
		= -	0.000423
_		<0.000440 <0.000537 <0.000441 <0.000440 <0.000538 <0.000726 <0.000503 <0.000512 <0.000507 0.000600 <0.000465 <0.000443 <0.000619 <0.000406 <0.000406 <0.00040 <0.00040 <0.00040 <0.00040 <0.00040 <0.00040 <0.00040 <0.00040 <0.00040 <0.00040 <0.00040 <0.00040 <0.000517 <0.00052 <0.00052 <0.00052 <0.00052 <0.00052 <0.00052 <0.00055 <0.00065 <0.00052 <0.00043 <0.00043 <0.00043 <0.00043 <0.00043 <0.00043 <0.00043 <0.00043 <0.00043 <0.00047 <0.00065 <0.000794 <0.000834 <0.000476 <0.000760 <0.000643	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$

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$method\ blank\ continued$. . .

Parameter					Reporting
Dibenzofuran <0.000408 mg/L 0.000408 Pentachlorobenzene <0.000571	Parameter	Flag		Units	Limits
Pentachlorobenzene	2,4-Dinitrophenol			${ m mg/L}$	0.00022
4-Nitrophenol	Dibenzofuran			${ m mg/L}$	0.000408
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	${\bf Pentachlorobenzene}$		< 0.000571	${ m mg/L}$	0.000571
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	4-Nitrophenol		< 0.00185	${ m mg/L}$	0.00185
2.3.4.6-Tetrachlorophenol <0.000565	2,4-Dinitrotoluene		< 0.000911	${ m mg/L}$	0.000911
2-Naphthylamine <0.000698			< 0.000688	${ m mg/L}$	0.000688
Fluorene	2,3,4,6-Tetrachlorophenol		< 0.000565	${ m mg/L}$	0.000565
A-Chlorophenyl-phenylether C.000619 mg/L D.000619 Diethylphthalate C.000828 mg/L D.000828 C.000828 mg/L D.000828 C.000828 C.000827 C.000827 C.000827 C.000827 C.000828 C	2-Naphthylamine		< 0.000699	m mg/L	0.000699
Diethylphthalate <0.000828	Fluorene		< 0.000648	m mg/L	0.000648
A-Nitroaniline	4-Chlorophenyl-phenylether		< 0.000619	m mg/L	0.000619
Diphenylhydrazine	${ m Diethylphthalate}$		< 0.000828	m mg/L	0.000828
4,6-Dinitro-2-methylphenol <0.00198	4-Nitroaniline		< 0.000702	${ m mg/L}$	0.000702
Diphenylamine <0.000440 mg/L 0.00044 4-Bromophenyl-phenylether <0.000550	Diphenylhydrazine		< 0.000657	m mg/L	0.000657
4-Bromophenyl-phenylether <0.000550 mg/L 0.00055 Phenacetin <0.000605	4,6-Dinitro- 2 -methylphenol		< 0.00198	m mg/L	0.00198
Phenacetin <0.000605 mg/L 0.000605 Hexachlorobenzene <0.000506	Diphenylamine		< 0.000440	${ m mg/L}$	0.00044
Hexachlorobenzene	$4 ext{-Bromophenyl-phenylether}$		< 0.000550	${ m mg/L}$	0.00055
4-Aminobiphenyl <0.000527	Phenacetin		< 0.000605	${ m mg/L}$	0.000605
Pentachlorophenol <0.000435 mg/L 0.000435 Anthracene <0.000428	${\it Hexachlorobenzene}$		< 0.000506	${ m mg/L}$	0.000506
Anthracene <0.000428 mg/L 0.000428 Pentachloronitrobenzene <0.000408	4-Aminobiphenyl		< 0.000527	${ m mg/L}$	0.000527
Pentachloronitrobenzene <0.000408 mg/L 0.000408 Pronamide <0.000476	Pentachlorophenol		< 0.000435	${ m mg/L}$	0.000435
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Anthracene		< 0.000428	${ m mg/L}$	0.000428
Phenanthrene <0.000548 mg/L 0.000548 Di-n-butylphthalate <0.000483	${\bf Pentach loron it robenzene}$		< 0.000408	m mg/L	0.000408
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Pronamide		< 0.000476	m mg/L	0.000476
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Phenanthrene		< 0.000548	m mg/L	0.000548
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	${ m Di} ext{-n-butylpht}$ halate		< 0.000483	m mg/L	0.000483
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Fluoranthene		< 0.000632	m mg/L	0.000632
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Benzidine		< 0.00238	${ m mg/L}$	0.00238
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Pyrene		< 0.000723	${ m mg/L}$	0.000723
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			< 0.000902	${ m mg/L}$	0.000902
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				${ m mg/L}$	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\operatorname{Benzo}(\operatorname{a}) \operatorname{anthracene}$			${ m mg/L}$	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3,3-Dichlorobenzidine			${ m mg/L}$	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Chrysene		< 0.000638	${ m mg/L}$	0.000638
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			< 0.000561	${ m mg/L}$	0.000561
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Di-n-octylphthalate			${ m mg/L}$	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			< 0.000879	${ m mg/L}$	0.000879
Benzo (a) pyrene <0.00167 mg/L 0.00167 3-Methylcholanthrene <0.000908			< 0.000845		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$, ,				
Dibenzo (a,j) acridine < 0.00129 mg/L 0.00129	(/ = 0			${ m mg/L}$	0.00167
· · · · · · · · · · · · · · · · · · ·	3-Methylcholanthrene		< 0.000908	${ m mg/L}$	0.000908
	${ m Dibenzo(a,j)}$ acridine				
Indeno $(1,2,3\text{-cd})$ pyrene <0.000862 mg/L 0.000862	, , 			m mg/L	
$ Dibenzo(a,h) anthracene \\ <0.000809 \\ mg/L \\ 0.000809 $					
$Benzo(g,h,i)perylene < 0.000949 \qquad mg/L \qquad 0.000949$	Benzo(g,h,i)perylene		< 0.000949	m mg/L	0.000949

 ${\it Work~Order:~9090320} \\ {\it HELSTF~Diesel~Spill~Groundwater}$

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	$\overline{\mathrm{Amount}}$	Recovery	$\operatorname{Limits}^{"}$
2-Fluorophenol		0.0243	m mg/L	1	0.0800	30	10 - 53.1
Phenol-d5		0.0140	$_{ m mg/L}$	1	0.0800	18	10 - 36.9
Nitrobenzene-d5		0.0454	$_{ m mg/L}$	1	0.0800	57	23.8 - 108
2-Fluorobiphenyl		0.0489	$_{ m mg/L}$	1	0.0800	61	15.9 - 127
2,4,6-Tribromophenol		0.0596	$_{ m mg/L}$	1	0.0800	74	10 - 123
Terphenyl-d14		0.0518	$_{ m mg/L}$	1	0.0800	65	17.2 - 160

Method Blank (1)

QC Batch: 63411 Prep Batch: 54129 Date Analyzed: 2009-09-09 QC Preparation: 2009-09-08

Analyzed By: MD Prepared By: MD

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				$\operatorname{Reporting}$
Parameter	Flag	Result	Units	Limits
Oil and Grease		< 3.60	m mg/L	3.6

Method Blank (1)

QC Batch: 63425 Prep Batch: 54137 Date Analyzed: 2009-09-10 QC Preparation: 2009-09-04 Analyzed By: DS Prepared By: DS

				$\operatorname{Reporting}$
Parameter	Flag	Result	Units	Limits
HMX		< 0.123	$\mu \mathrm{g}/\mathrm{L}$	0.123
RDX		< 0.298	$\mu { m g}/{ m L}$	0.298
1,3,5-Trinitrobenzene		< 0.339	$\mu { m g}/{ m L}$	0.339
1,3-Dinitrobenzene		< 0.389	$\mu { m g}/{ m L}$	0.389
Nitrobenzene		< 0.379	$\mu { m g}/{ m L}$	0.379
Tetryl		< 0.413	$\mu { m g}/{ m L}$	0.413
TNT		< 0.464	$\mu { m g}/{ m L}$	0.464
4-Amino-DNT		< 0.319	$\mu { m g}/{ m L}$	0.319
2-Amino-DNT		< 0.391	$\mu { m g}/{ m L}$	0.391
2,6-DNT		< 0.323	$\mu { m g}/{ m L}$	0.323
2,4-DNT		< 0.366	$\mu { m g}/{ m L}$	0.366
2-NT		< 0.379	$\mu { m g}/{ m L}$	0.379
4-NT		< 0.398	$\mu { m g}/{ m L}$	0.398
3-NT		< 0.346	$\mu { m g}/{ m L}$	0.346

					Spike	$\operatorname{Percent}$	Recovery
Surrogate	Flag	Result	Units	Dilution	${ m Amount}$	Recovery	Limits
1,2-Dinitrobenzene		2.40	$\mu \mathrm{g/L}$	1	2.50	96	19.8 - 160

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HELSTF Diesel Spill Groundwater

< 2.45

mg/L

2.45

Method Bla	nnk (1)				
QC Batch: Prep Batch:	63441 54150	Date Analyzed: QC Preparation:			Analyzed By: AH Prepared By: AH
Parameter		Flag	Result	Units	$rac{ m Reporting}{ m Limits}$

Method Blank (1)

Total Kjeldahl Nitrogen - N

QC Batch: 63462 Date Analyzed: 2009-09-11 Analyzed By: RR Prep Batch: 54154 QC Preparation: 2009-09-11 Prepared By: KV

				Reporting
Parameter	Flag	Result	Units	Limits
Dissolved Chromium		< 0.000583	$\mathrm{mg/L}$	0.000583

Method Blank (1)

QC Batch: 63473 Date Analyzed: 2009-09-03 Analyzed By: MD Prep Batch: 54173 QC Preparation: 2009-09-03 Prepared By: MD

				Reporting
Parameter	Flag	Result	Units	Limits
Total Dissolved Solids		<5.00	mg/L	5

Method Blank (1)

QC Batch: 63527 Date Analyzed: 2009-09-10 Analyzed By: JG Prep Batch: 54231 QC Preparation: 2009-09-10 Prepared By: JG

Parameter	Flag	Result	Units	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
Hydroxide Alkalinity		< 1.00	mg/L as CaCo3	1
Carbonate Alkalinity		< 1.00	mg/L as $CaCo3$	1
Bicarbonate Alkalinity		< 4.00	mg/L as $CaCo3$	4
Total Alkalinity		< 4.00	mg/L as $CaCo3$	4

Method Blank (1)

QC Batch: 63545 Date Analyzed: 2009-09-15 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

Report Date: October 1, 2009

Work Order: 9090320 HELSTF Diesel Spill Groundwater Page Number: 29 of 80

Flag	Result < 0.117	$\frac{\rm Units}{\rm mg/L}$	Reporting Limits 0.117
Flag			
	V0.111	1115/11	0.117
		- Oi	0.221
	Date Analyzed: 2009-09-15		Analyzed By: RR
	QC Preparation: 2009-09-09		Prepared By: KV
			Reporting
Flag	Result	Units	Limits
	< 0.172	m mg/L	0.172
	D 4 1 1 2000 00 45		
			Analyzed By: RR Prepared By: KV
	QC 1 reparation. 2003 03 03		-
Flag	Rogult	Unite	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
Flag			0.16
	Date Analyzed: 2009-09-15 QC Preparation: 2009-09-09		Analyzed By: RR Prepared By: KV
			Reporting
Flag	Result	Units	Limits
	< 0.0500	mg/L	0.05
	Date Analyzed: 2009-09-16		Analyzed By: JR
	QC Preparation: 2009-09-10		Prepared By: JR
Flag	Result	Units	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
	< 0.0434	m mg/L	0.0434
	Date Analyzed: 2009-09-03		Analyzed By: JR
	QC Preparation: 2009-09-03		Prepared By: JR
	Flag	Plag Result	Plag Result Units

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Prep Batch: 54064

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Prepared By: JG

Danamatan	Elo m	Dogul	.	Units	Reporting
Parameter Bromide	Flag	Resul <0.039		$\frac{\mathrm{Om}\mathrm{cs}}{\mathrm{mg/L}}$	Limits 0.0394
Formuc		\0.03 <i>3</i>	<u> </u>	mg/ L	0.0091
Method Blank (1)					
QC Batch: 63677		Date Analyzed:	2009-09-03		Analyzed By: JR
Prep Batch: 54366		QC Preparation:	2009-09-03		Prepared By: JR
D	TDI.	D. L		TT '	Reporting
Parameter Chloride	Flag	Result < 0.640		$\frac{\rm Units}{\rm mg/L}$	Limits 0.6404
Smoride)F0.07)	mg/L	0.0404
Method Blank (1)					
QC Batch: 63677		Date Analyzed:	2009-09-03		Analyzed By: JR
Prep Batch: 54366		QC Preparation:	2009-09-03		Prepared By: JR
D .	TD1	T) 1		TT 1.	Reporting
Parameter Sulfate	Flag	Result <0.504		$\frac{\rm Units}{\rm mg/L}$	Limits 0.5038
Method Blank (1) QC Batch: 63678 Prep Batch: 54367		Date Analyzed: QC Preparation:	2009-09-17 2009-09-17		Analyzed By: KV Prepared By: KV
rrep b atcii: 54507		QC r reparation.	2009-09-17		Reporting
Parameter		<u> </u>	Result	Units	Limits
Total Organic Carbon		·	< 0.401	$_{ m mg/L}$	0.401
Method Blank (1)					
QC Batch: 63681		Date Analyzed:	2009-09-17		Analyzed By: KV
Prep Batch: 54370		QC Preparation:	2009-09-17		Prepared By: KV
Parameter		Flag	Result	Units	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
Nitrate and Nitrite as N			<0.0350	$\frac{\rm mg/L}$	0.035
Duplicate (1) Duplica	ted Sample	:: 209099			
QC Batch: 63341		Date Analyzed:	2009-09-02		Analyzed By: JG
Drop Batch: 54064		OC Proposation	2000 00 02		Dropored Dr. IC

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	Duplicate	Sample				RPD
Param	Result	Result	Units	Dilution	RPD	Limit
pН	6.94	6.94	s.u.	1	0	1.1

Duplicate (1) Duplicated Sample: 208953

QC Batch: 63473Date Analyzed: 2009-09-03 Analyzed By: MD Prep Batch: 54173 QC Preparation: Prepared By: MD 2009-09-03

	Duplicate	\mathbf{Sample}				RPD
Param	Result	Result	Units	$\operatorname{Dilution}$	RPD	Limit
Total Dissolved Solids	28800	29500	mg/L	1	2	10

Duplicate (1) Duplicated Sample: 208953

QC Batch: Date Analyzed: 2009-09-10 Analyzed By: JG Prep Batch: 54231 QC Preparation: 2009-09-10 Prepared By: JG

	Duplicate	\mathbf{Sample}				RPD
Param	Result	Result	Units	$\operatorname{Dilution}$	RPD	Limit
Hydroxide Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	< 1.00	< 1.00	mg/L as $CaCo3$	1	0	20
Bicarbonate Alkalinity	262	260	mg/L as $CaCo3$	1	1	20
Total Alkalinity	262	260	mg/L as CaCo3	1	1	20

Laboratory Control Spike (LCS-1)

QC Batch: 63239 Date Analyzed: 2009-09-03 Analyzed By: ER Prep Batch: 53976 QC Preparation: 2009-09-03 Prepared By: ER

	$_{ m LCS}$			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
$\overline{\mathrm{GRO}}$	1.08	$\mathrm{mg/L}$	1	1.00	< 0.152	108	75.5 - 118

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	$_{ m LCSD}$			$_{ m Spike}$	Matrix		${ m Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
$\overline{\mathrm{GRO}}$	1.05	mg/L	1	1.00	< 0.152	105	75.5 - 118	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	$\mathrm{Rec.}$
Surrogate	Result	Result	Units	Dil.	${f Amount}$	Rec .	Rec .	Limit
Trifluorotoluene (TFT)	0.109	0.104	$\mathrm{mg/L}$	1	0.100	109	104	78.2 - 121
4-Bromofluorobenzene (4-BFB)	0.106	0.104	mg/L	1	0.100	106	104	82.2 - 118

HELSTF Diesel Spill Groundwater

Laboratory Control Spike (LCS-1)

QC Batch: 63280 Date Analyzed: 2009-09-04 Analyzed By: TP
Prep Batch: 54009 QC Preparation: 2009-09-04 Prepared By: TP

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Total Mercury 0.00103 0.00100 < 0.0000329 103 90.3 - 108 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	A mount	Result	Rec .	Limit	RPD	Limit
Total Mercury	0.00104	mg/L	1	0.00100	< 0.0000329	104	90.3 - 108	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63307 Date Analyzed: 2009-09-07 Analyzed By: AW Prep Batch: 54035 QC Preparation: 2009-09-04 Prepared By: AW

LCS Spike Matrix Rec. Limit Param Result Units Dil. Amount Result Rec. DRO 27.0 mg/L25.0< 0.876108 78.6 - 154

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
DRO	28.3	mg/L	1	25.0	< 0.876	113	78.6 - 154	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	$_{ m LCS}$	LCSD	$\mathrm{Rec.}$
Surrogate	Result	Result	Units	Dil.	${f Amount}$	$\mathrm{Rec.}$	$\mathrm{Rec}.$	Limit
n-Triacontane	8.66	8.90	$_{ m mg/L}$	1	10.0	87	89	57.3 - 151

Laboratory Control Spike (LCS-1)

QC Batch: 63330 Date Analyzed: 2009-09-02 Analyzed By: MD Prep Batch: 54057 QC Preparation: 2009-09-02 Prepared By: MD

	$_{ m LCS}$			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Hexavalent Chromium	0.515	m mg/L	1	0.500	< 0.00594	103	95.4 - 105

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

 $continued \dots$

Report Date: October 1, 2009

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HELSTF Diesel Spill Groundwater

$control\ spikes\ continued\ \dots$									
•	LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
	- 00-						_		
	$_{ m LCSD}$			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit	RPD	Limit
Hexavalent Chromium	0.506	mg/L	1	0.500	< 0.00594	101	95.4 - 105	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Prep Batch: 54079 Date Analyzed: 2009-09-09 QC Preparation: 2009-09-09

Analyzed By: RR Prepared By: KV

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	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Silver	0.128	$\mathrm{mg/L}$	1	0.125	< 0.00111	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	$_{ m LCSD}$			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Silver	0.125	$\mathrm{mg/L}$	1	0.125	< 0.00111	100	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Prep Batch: 54079 Date Analyzed: 2009-09-09 QC Preparation: 2009-09-09

Analyzed By: RR Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Aluminum	0.989	$\mathrm{mg/L}$	1	1.00	< 0.00301	99	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Aluminum	0.970	mg/L	1	1.00	< 0.00301	97	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 54079 Date Analyzed: 2009-09-09 QC Preparation: 2009-09-09

Analyzed By: RR Prepared By: KV

-							
	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
Total Arsenic	0.506	mg/L	1	0.500	< 0.00448	101	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Arsenic	0.493	mg/L	1	0.500	< 0.00448	99	85 - 115	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

 QC Batch:
 63374
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	LCS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
Total Barium	1.05	$\mathrm{mg/L}$	1	1.00	< 0.00105	105	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Barium	1.04	mg/L	1	1.00	< 0.00105	104	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Prep Batch: 54079 Date Analyzed: 2009-09-09 QC Preparation: 2009-09-09 Analyzed By: RR Prepared By: KV

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Total Bervllium	0.0260	$_{ m mg/L}$	1	0.0250	< 0.000450	104	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	A mount	Result	Rec .	Limit	RPD	Limit
Total Beryllium	0.0250	mg/L	1	0.0250	< 0.000450	100	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
Total Cadmium	0.263	mg/L	1	0.250	<0.000303	105	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Total Cadmium	0.258	$\mathrm{mg/L}$	1	0.250	< 0.000303	103	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Prep Batch: 54079

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	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Cobalt	0.254	$\mathrm{mg/L}$	1	0.250	< 0.000822	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Cobalt	0.251	mg/L	1	0.250	< 0.000822	100	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Prep Batch: 54079 Date Analyzed: 2009-09-09 QC Preparation: 2009-09-09

Analyzed By: RR Prepared By: KV

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Total Chromium	0.102	$_{ m mg/L}$	1	0.100	< 0.000583	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Chromium	0.0990	mg/L	1	0.100	< 0.000583	99	85 - 115	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

	$_{ m LCS}$			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	$\overline{ ext{Amount}}$	Result	Rec .	Limit
Total Copper	0.130	mg/L	1	0.125	< 0.000843	104	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Copper	0.127	mg/L	1	0.125	< 0.000843	102	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

 QC Batch:
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	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Iron	0.523	$_{ m mg/L}$	1	0.500	< 0.000872	105	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec .	Limit	RPD	Limit
Total Iron	0.515	mg/L	1	0.500	< 0.000872	103	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
Total Manganese	0.264	mg/L	1	0.250	< 0.000305	106	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Manganese	0.259	mg/L	1	0.250	< 0.000305	104	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
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	LCS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Molybdenum	0.552	mg/L	1	0.500	<0.00119	110	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	$_{ m LCSD}$			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit	RPD	Limit
Total Molybdenum	0.543	$\mathrm{mg/L}$	1	0.500	< 0.00119	109	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
Total Nickel	0.263	$\mathrm{mg/L}$	1	0.250	< 0.00121	105	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Nickel	0.257	mg/L	1	0.250	< 0.00121	103	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
Total Phosphorous	0.495	mg/L	1	0.500	< 0.00289	99	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Phosphorous	0.481	mg/L	1	0.500	< 0.00289	96	85 - 115	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

	LCS			Spike	Matrix		Rec.
Param	Result	Units	$\mathrm{Dil}.$	${f Amount}$	Result	Rec.	Limit
Total Lead	0.507	$\mathrm{mg/L}$	1	0.500	< 0.00326	101	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Lead	0.492	mg/L	1	0.500	< 0.00326	98	85 - 115	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Prep Batch: 54079 Date Analyzed: 2009-09-09 QC Preparation: 2009-09-09

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	LCS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
Total Antimony	0.245	$\mathrm{mg/L}$	1	0.250	< 0.00440	98	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	$_{ m LCSD}$			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Antimony	0.244	mg/L	1	0.250	< 0.00440	98	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Prep Batch: 54079 Date Analyzed: 2009-09-09 QC Preparation: 2009-09-09 Analyzed By: RR Prepared By: KV

	$_{ m LCS}$			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
Total Selenium	0.457	$_{ m mg/L}$	1	0.500	< 0.00508	91	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Selenium	0.447	mg/L	1	0.500	< 0.00508	89	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	$\overline{\mathrm{Amount}}$	Result	Rec .	Limit
Total Thallium	0.522	m mg/L	1	0.500	< 0.00488	104	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	$_{ m LCSD}$			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit	RPD	Limit
Total Thallium	0.510	$\mathrm{mg/L}$	1	0.500	< 0.00488	102	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374Prep Batch: 54079

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	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Vanadium	0.252	$_{ m mg/L}$	1	0.250	< 0.000426	101	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Vanadium	0.248	mg/L	1	0.250	< 0.000426	99	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63374 Date Analyzed: Prep Batch: 54079 QC Preparation: 2009-09-09

Analyzed By: RR Prepared By: KV

	$_{ m LCS}$			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Total Zinc	0.233	$_{ m mg/L}$	1	0.250	< 0.000465	93	85 - 115

2009-09-09

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Zinc	0.230	mg/L	1	0.250	< 0.000465	92	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63393 Date Analyzed: 2009-09-10 Analyzed By: MN Prep Batch: 54112 QC Preparation: 2009-09-08 Prepared By: MN

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HELSTF Diesel Spill Groundwat	er

		LCS			Spike	Matrix		$\mathrm{Rec}.$
Param		Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Phenol		0.0142	$\mathrm{mg/L}$	1	0.0800	< 0.000509	18	10 - 66.5
2-Chlorophenol		0.0356	${ m mg/L}$	1	0.0800	< 0.000537	44	11.2 - 108
1,4-Dichlorobenzene (para)		0.0341	${ m mg/L}$	1	0.0800	< 0.000440	43	16 - 101
N-Nitrosodi-n-propylamine		0.0466	${ m mg/L}$	1	0.0800	< 0.000732	58	10 - 142
1,2,4-Trichlorobenzene		0.0353	${ m mg/L}$	1	0.0800	< 0.000404	44	18 - 118
${ m Naphthalene}$		0.0369	${ m mg/L}$	1	0.0800	< 0.000489	46	20.2 - 114
4-Chloro-3-methylphenol		0.0539	${ m mg/L}$	1	0.0800	< 0.000522	67	21.5 - 125
${ m Acenaphthylene}$		0.0465	${ m mg/L}$	1	0.0800	< 0.000586	58	25.8 - 121
${ m Acenaphthene}$		0.0462	${ m mg/L}$	1	0.0800	< 0.000423	58	33.5 - 122
4-Nitrophenol		0.0204	${ m mg/L}$	1	0.0800	< 0.00185	26	10 - 125
2,4-Dinitrotoluene		0.0550	${ m mg/L}$	1	0.0800	< 0.000911	69	53 - 130
Fluorene		0.0502	${ m mg/L}$	1	0.0800	< 0.000648	63	44.6 - 117
${ m Pentachlorophenol}$		0.0148	${ m mg/L}$	1	0.0800	< 0.000435	18	10 - 139
${ m Anthracene}$		0.0481	${ m mg/L}$	1	0.0800	< 0.000428	60	57.5 - 115
Phenanthrene		0.0504	${ m mg/L}$	1	0.0800	< 0.000548	63	55.5 - 118
Fluoranthene		0.0541	${ m mg/L}$	1	0.0800	< 0.000632	68	57 - 122
Pyrene	4	0.0453	${ m mg/L}$	1	0.0800	< 0.000723	57	58.5 - 130
$\operatorname{Benzo}(\operatorname{a}) \operatorname{anthracene}$	5	0.0467	${ m mg/L}$	1	0.0800	< 0.000527	58	63.4 - 109
Chrysene		0.0492	$\mathrm{mg/L}$	1	0.0800	< 0.000638	62	54.7 - 114
$\operatorname{Benzo}(b)$ fluoranthene	6	0.0434	$\mathrm{mg/L}$	1	0.0800	< 0.000879	54	64.8 - 120
$\operatorname{Benzo}(k)$ fluoranthene		0.0675	$\mathrm{mg/L}$	1	0.0800	< 0.000845	84	70.3 - 114
$\mathrm{Benzo}(\mathrm{a})\mathrm{pyrene}$		0.0612	$\mathrm{mg/L}$	1	0.0800	< 0.00167	76	63.7 - 120
Indeno(1,2,3-cd)pyrene		0.0598	${ m mg/L}$	1	0.0800	< 0.000862	75	65.4 - 119
${ m Dibenzo(a,h)}$ anthracene		0.0600	$\mathrm{mg/L}$	1	0.0800	< 0.000809	75	68.7 - 117
$\operatorname{Benzo}(g,h,i)$ perylene		0.0613	$\mathrm{mg/L}$	1	0.0800	< 0.000949	77	57.2 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec.}$	Limit	RPD	Limit
Phenol	0.0145	$\mathrm{mg/L}$	1	0.0800	< 0.000509	18	10 - 66.5	2	20
2-Chlorophenol	0.0359	$\mathrm{mg/L}$	1	0.0800	< 0.000537	45	11.2 - 108	1	20
1,4-Dichlorobenzene (para)	0.0337	mg/L	1	0.0800	< 0.000440	42	16 - 101	1	20
N-Nitrosodi-n-propylamine	0.0459	mg/L	1	0.0800	< 0.000732	57	10 - 142	2	20
1,2,4-Trichlorobenzene	0.0347	mg/L	1	0.0800	< 0.000404	43	18 - 118	2	20
Naphthalene	0.0369	mg/L	1	0.0800	< 0.000489	46	20.2 - 114	0	20
4-Chloro-3-methylphenol	0.0541	mg/L	1	0.0800	< 0.000522	68	21.5 - 125	0	20
${ m Acenapht}$ hylene	0.0459	mg/L	1	0.0800	< 0.000586	57	25.8 - 121	1	20
${ m Acenaphthene}$	0.0457	mg/L	1	0.0800	< 0.000423	57	33.5 - 122	1	20
4-Nitrophenol	0.0203	mg/L	1	0.0800	< 0.00185	25	10 - 125	0	20
2,4-Dinitrotoluene	0.0536	mg/L	1	0.0800	< 0.000911	67	53 - 130	3	20
Fluorene	0.0496	mg/L	1	0.0800	< 0.000648	62	44.6 - 117	1	20
${ m Pentachlorophenol}$	0.0161	mg/L	1	0.0800	< 0.000435	20	10 - 139	8	20
${ m Anthracene}$	0.0491	mg/L	1	0.0800	< 0.000428	61	57.5 - 115	2	20
Phenanthrene	0.0514	$\mathrm{mg/L}$	1	0.0800	< 0.000548	64	55.5 - 118	2	20
Fluoranthene	0.0549	$\mathrm{mg/L}$	1	0.0800	< 0.000632	69	57 - 122	2	20

 $\overline{continued}$. . .

 $^{^4\}mathrm{Spike}$ analyte out of control limits. Results biased low. $^5\mathrm{Spike}$ analyte out of control limits. Results biased low. $^6\mathrm{Spike}$ analyte out of control limits. Results biased low. \bullet

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control spikes continued . . .

-		LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param		Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Pyrene		0.0463	mg/L	1	0.0800	< 0.000723	58	58.5 - 130	2	20
Benzo(a)anthracene	7	0.0476	$\mathrm{mg/L}$	1	0.0800	< 0.000527	60	63.4 - 109	2	20
Chrysene		0.0502	mg/L	1	0.0800	< 0.000638	63	54.7 - 114	2	20
Benzo(b)fluoranthene	8	0.0558	mg/L	1	0.0800	< 0.000879	70	64.8 - 120	25	20
Benzo(k)fluoranthene		0.0692	mg/L	1	0.0800	< 0.000845	86	70.3 - 114	2	20
Benzo(a)pyrene		0.0604	mg/L	1	0.0800	< 0.00167	76	63.7 - 120	1	20
Indeno(1,2,3-cd)pyrene		0.0591	mg/L	1	0.0800	< 0.000862	74	65.4 - 119	1	20
Dibenzo(a,h)anthracene		0.0616	mg/L	1	0.0800	< 0.000809	77	68.7 - 117	3	20
Benzo(g,h,i) perylene		0.0630	mg/L	1	0.0800	< 0.000949	79	57.2 - 125	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	$egin{array}{c} ext{Spike} \ ext{Amount} \end{array}$	$\frac{LCS}{Rec.}$	$\begin{array}{c} { m LCSD} \\ { m Rec.} \end{array}$	$egin{array}{c} \operatorname{Rec.} \ \operatorname{Limit} \end{array}$
2-Fluorophenol	0.0285	0.0283	mg/L	1	0.0800	36	35	10 - 53.1
Phenol-d5	0.0192	0.0195	$_{ m mg/L}$	1	0.0800	24	24	10 - 36.9
Nitrobenzene-d5	0.0465	0.0464	$_{ m mg/L}$	1	0.0800	58	58	23.8 - 108
2-Fluorobiphenyl	0.0489	0.0486	$_{ m mg/L}$	1	0.0800	61	61	15.9 - 127
2,4,6-Tribromophenol	0.0799	0.0799	m mg/L	1	0.0800	100	100	10 - 123
Terphenyl-d14	0.0635	0.0653	mg/L	1	0.0800	79	82	17.2 - 160

Laboratory Control Spike (LCS-1)

QC Batch: 63411 Date Analyzed: 2009-09-09 Analyzed By: MD Prep Batch: 54129 QC Preparation: 2009-09-08 Prepared By:

		LCS			Spike	Matrix		$\mathrm{Rec}.$
Param		Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Oil and Grease	9	18.3	mg/L	1	40.0	< 3.60	46	78 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param		Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Oil and Grease	10	17.4	$\mathrm{mg/L}$	1	40.0	< 3.60	44	78 - 114	5	18

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63425Date Analyzed: 2009-09-10 Analyzed By: DS Prep Batch: 54137 QC Preparation: 2009-09-04 Prepared By: DS

⁷Spike analyte out of control limits. Results biased low. •

⁸RPD outside RPD limits.

 $^{^9\}mathrm{SPECIAL}$: Sodium Sulfate may have caused low LCS, LCSD, and MS recovery. Results may be biased low. ullet

¹⁰SPECIAL: Soduium Sulfate may have caused low LCS, LCSD, and MS recovery. Samples may be biased low. •

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	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec.}$	Limit
HMX	2.41	$\mu \mathrm{g/L}$	1	2.50	< 0.123	96	63.5 - 125
RDX	2.37	$\mu { m g}/{ m L}$	1	2.50	< 0.298	95	74.5 - 124
1,3,5-Trinitrobenzene	2.38	$\mu { m g}/{ m L}$	1	2.50	< 0.339	95	54.1 - 131
1,3-Dinitrobenzene	2.45	$\mu { m g}/{ m L}$	1	2.50	< 0.389	98	72 - 112
Nitrobenzene	2.50	$\mu { m g}/{ m L}$	1	2.50	< 0.379	100	72.5 - 126
Tetryl	2.31	$\mu { m g}/{ m L}$	1	2.50	< 0.413	92	35.9 - 149
TNT	2.37	$\mu { m g}/{ m L}$	1	2.50	< 0.464	95	40.7 - 129
4-Amino-DNT	2.31	$\mu { m g/L}$	1	2.50	< 0.319	92	80 - 120
2-Amino-DNT	2.51	$\mu { m g}/{ m L}$	1	2.50	< 0.391	100	80 - 120
2,6-DNT	2.19	$\mu { m g}/{ m L}$	1	2.50	< 0.323	88	80 - 120
2,4-DNT	2.52	$\mu { m g}/{ m L}$	1	2.50	< 0.366	101	80 - 120
2-NT	2.47	$\mu \mathrm{g}/\mathrm{L}$	1	2.50	< 0.379	99	49.8 - 139
4-NT	2.07	$\mu { m g}/{ m L}$	1	2.50	< 0.398	83	56.3 - 141
3-NT	2.37	$\mu \mathrm{g}/\mathrm{L}$	1	2.50	< 0.346	95	66.2 - 129

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

T.	LCSD	TT	D.I.	Spike	Matrix	T.	Rec.	DDD	RPD
Param	Result	Units	Dil.	Amount	Result	Rec .	Limit	RPD	Limit
HMX	2.43	$\mu { m g}/{ m L}$	1	2.50	< 0.123	97	63.5 - 125	1	20
RDX	2.33	$\mu { m g}/{ m L}$	1	2.50	< 0.298	93	74.5 - 124	2	20
1, 3, 5-Trinitrobenzene	2.38	$\mu { m g}/{ m L}$	1	2.50	< 0.339	95	54.1 - 131	0	20
1,3-Dinitrobenzene	2.41	$\mu { m g}/{ m L}$	1	2.50	< 0.389	96	72 - 112	2	20
Nitrobenzene	2.46	$\mu { m g}/{ m L}$	1	2.50	< 0.379	98	72.5 - 126	2	20
Tetryl	2.26	$\mu { m g}/{ m L}$	1	2.50	< 0.413	90	35.9 - 149	2	20
TNT	2.33	$\mu { m g}/{ m L}$	1	2.50	< 0.464	93	40.7 - 129	2	20
4-Amino-DNT	2.37	$\mu { m g}/{ m L}$	1	2.50	< 0.319	95	80 - 120	3	20
2-Amino-DNT	2.64	$\mu { m g}/{ m L}$	1	2.50	< 0.391	106	80 - 120	5	20
2,6-DNT	2.29	$\mu { m g}/{ m L}$	1	2.50	< 0.323	92	80 - 120	4	20
2,4-DNT	2.60	$\mu { m g}/{ m L}$	1	2.50	< 0.366	104	80 - 120	3	20
2-NT	2.34	$\mu \mathrm{g}/\mathrm{L}$	1	2.50	< 0.379	94	49.8 - 139	5	20
4-NT	2.26	$\mu { m g}/{ m L}$	1	2.50	< 0.398	90	56.3 - 141	9	20
3-NT	2.43	$\mu \mathrm{g}/\mathrm{L}$	1	2.50	< 0.346	97	66.2 - 129	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	$\mathrm{Rec.}$
$\mathbf{Surrogate}$	Result	Result	Units	Dil.	${f Amount}$	Rec .	$\mathrm{Rec.}$	Limit
1,2-Dinitrobenzene	2.29	2.15	$\mu \mathrm{g/L}$	1	2.50	92	86	53 - 134

Laboratory Control Spike (LCS-1)

QC Batch: 63462Date Analyzed: 2009-09-11 Analyzed By: RR Prep Batch: 54154 QC Preparation: 2009-09-11 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Dissolved Chromium	0.100	mg/L	1	0.100	< 0.000583	100	85 - 115

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Dissolved Chromium	0.101	$\mathrm{mg/L}$	1	0.100	< 0.000583	101	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63545 Prep Batch: 54079 Date Analyzed: 2009-09-15 QC Preparation: 2009-09-09 Analyzed By: RR Prepared By: KV

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	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec.}$	Limit
Total Calcium	54.9	$\mathrm{mg/L}$	1	50.0	< 0.117	110	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil .	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Calcium	53.0	$\mathrm{mg/L}$	1	50.0	< 0.117	106	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63545 Prep Batch: 54079 Date Analyzed: 2009-09-15 QC Preparation: 2009-09-09 Analyzed By: RR Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	$\mathrm{Rec}.$	Limit
Total Potassium	54.0	$\mathrm{mg/L}$	1	50.0	< 0.172	108	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil .	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Potassium	52.1	mg/L	1	50.0	< 0.172	104	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63545 Date Analy Prep Batch: 54079 QC Prepar

Date Analyzed: 2009-09-15 QC Preparation: 2009-09-09 Analyzed By: RR Prepared By: KV

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	$\mathrm{Rec.}$	Limit
Total Magnesium	52.3	m mg/L	1	50.0	< 0.160	105	85 - 115

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	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	$\mathbf{A}\mathbf{mount}$	Result	Rec.	Limit	RPD	Limit
Total Magnesium	50.1	mg/L	1	50.0	< 0.160	100	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63545Prep Batch: 54079

2009-09-15 Date Analyzed: QC Preparation: 2009-09-09

Analyzed By: RR Prepared By: KV

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	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Sodium	55.4	m mg/L	1	50.0	< 0.0500	111	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Sodium	52.9	$\mathrm{mg/L}$	1	50.0	< 0.0500	106	85 - 115	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63674Prep Batch: 54363 Date Analyzed: 2009-09-16 QC Preparation: 2009-09-16 Analyzed By: JR Prepared By: JR

	$_{ m LCS}$			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	${f Limit}$
Fluoride	4.90	$_{ m mg/L}$	1	5.00	< 0.0434	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			$_{ m Spike}$	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Fluoride	4.89	mg/L	1	5.00	< 0.0434	98	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63677 Prep Batch: 54366

2009-09-03 Date Analyzed: QC Preparation: 2009-09-03

Analyzed By: JR Prepared By: $_{
m JR}$

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Bromide	4.85	m mg/L	1	5.00	< 0.0394	97	90 - 110

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	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Bromide	4 83	mg/L	1	5.00	< 0.0394	97	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63677 Date Analyzed: 2009-09-03 Analyzed By: JR
Prep Batch: 54366 QC Preparation: 2009-09-03 Prepared By: JR

LCS Spike Rec. Matrix Param Result Units Dil. Amount Result Rec. Limit Chloride 24.6 25.0 < 0.640 90 - 110 mg/L98 1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil .	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Chloride	24.5	$\mathrm{mg/L}$	1	25.0	< 0.640	98	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63677 Date Analyzed: 2009-09-03 Analyzed By: JR
Prep Batch: 54366 QC Preparation: 2009-09-03 Prepared By: JR

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Sulfate 24.2 mg/L25.0< 0.50497 90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil .	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Sulfate	24.1	mg/L	1	25.0	< 0.504	96	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63678 Date Analyzed: 2009-09-17 Analyzed By: KV Prep Batch: 54367 QC Preparation: 2009-09-17 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
Total Organic Carbon	52.5	m mg/L	1	50.0	< 0.401	105	89.5 - 114

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	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Total Organic Carbon	52.5	mg/L	1	50.0	< 0.401	105	89.5 - 114	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209098

QC Batch: 63239 Date Analyzed: 2009-09-03 Analyzed By: ER
Prep Batch: 53976 QC Preparation: 2009-09-03 Prepared By: ER

MSMatrix Spike Rec. Param Result Units Dil. Amount Result Limit Rec. GRO < 0.15248.4 - 136 1.11 mg/L1.00 111 1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

MSD Spike Matrix RPD Rec. Param Result Units Dil. Amount Result Rec. Limit RPD Limit GRO 20 0.768mg/L1.00 < 0.15277 48.4 - 136 36

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MS	MSD			Spike	MS	MSD	$\mathrm{Rec}.$
$\operatorname{Surrogate}$		Result	Result	Units	Dil.	${f Amount}$	$\mathrm{Rec}.$	Rec .	Limit
Trifluorotoluene (TFT)	12	0.112	0.0584	mg/L	1	0.1	112	58	70.3 - 129
4-Bromofluorobenzene (4-BFB)	13	0.111	0.0576	mg/L	1	0.1	111	58	82.5 - 118

Matrix Spike (MS-1) Spiked Sample: 209098

QC Batch: 63280 Date Analyzed: 2009-09-04 Analyzed By: TP
Prep Batch: 54009 QC Preparation: 2009-09-04 Prepared By: TP

MSSpike Matrix Rec. Param Result Units Dil. AmountResult Rec. Limit Total Mercury 0.000980 mg/L0.00100 < 0.0000329 80 - 116

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

MSD RPD Spike Matrix Rec. Param Result Units Dil. Amount Result Limit RPD Limit Rec. 0.000970 < 0.0000329 80 - 116 Total Mercury mg/L1 0.0010097 20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 208666

QC Batch: 63307 Date Analyzed: 2009-09-07 Analyzed By: AW Prep Batch: 54035 QC Preparation: 2009-09-04 Prepared By: AW

¹¹MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

¹² Matrix spike recovery out of control limits. Use LCS/LCSD to demonstrate analysis is under control.

¹³ Matrix spike recovery out of control limits. Use LCS/LCSD to demonstrate analysis is under control.

Param

DRO

Work Order: 9090320 HELSTF Diesel Spill Groundwater

1

MC			C '1	M		D	_
MS			${ m Spike}$	Matrix		$\mathrm{Rec}.$	
Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec}.$	Limit	

< 0.876

25.0

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54 - 144

97

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

24.3

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
DRO	23.5	mg/L	1	25.0	< 0.876	94	54 - 144	3	20

mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			Spike	MS	MSD	${ m Rec}$.
Surrogate	Result	Result	Units	Dil.	${f Amount}$	$\mathrm{Rec.}$	$\mathrm{Rec.}$	Limit
n-Triacontane	10.9	10.9	$_{ m mg/L}$	1	10	109	109	57.3 - 151

Matrix Spike (MS-1) Spiked Sample: 209099

QC Batch: 63330 Date Analyzed: 2009-09-02 Analyzed By: MD Prep Batch: 54057 QC Preparation: 2009-09-02 Prepared By: MD

MS Spike Matrix Rec. Param Result Units Dil. AmountResult Rec. Limit Hexavalent Chromium 0.560 0.556< 0.00659 101 80.1 - 118 mg/L1.11

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Hexavalent Chromium	0.566	mg/L	1.11	0.556	< 0.00659	102	80.1 - 118	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209099

QC Batch: 63370 Date Analyzed: 2009-09-05 Analyzed By: AH Prep Batch: 54092 QC Preparation: 2009-09-05 Prepared By: AH

	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Ammonia-N	5.38	$_{ m mg/L}$	1	5.00	0.504	98	57.2 - 133

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Ammonia-N	5.26	$\mathrm{mg/L}$	1	5.00	0.504	95	57.2 - 133	2	20

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Total Silver 0.120 0.125< 0.0011175 - 125 mg/L 96

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Silver	0.118	mg/L	1	0.125	< 0.00111	94	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike MatrixRec. Limit Param Result Units Dil. AmountResult Rec. Total Aluminum 1.26 mg/L1.00 0.151 111 75 - 125 1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Aluminum	1.24	mg/L	1	1.00	0.151	109	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Param Result Units Dil. Result Rec. Limit Amount Total Arsenic 0.509 mg/L0.500 0.061 90 75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Arsenic	0.500	mg/L	1	0.500	0.061	88	75 - 125	2	20

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Param Result Units Dil. AmountResult Rec. Limit Total Barium 1.00 0.01275 - 125 0.835mg/L82

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Barium	0.816	mg/L	1	1.00	0.012	80	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Dil. Param Result Units Amount Result Rec. Limit Total Beryllium 0.0210 mg/L0.0250 < 0.00045084 75 - 125 1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Beryllium	0.0210	mg/L	1	0.0250	< 0.000450	84	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Param Result Units Dil. Amount Result Limit Rec. < 0.000303 Total Cadmium 0.213 0.250 85 75 - 125 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Cadmium	0.199	mg/L	1	0.250	< 0.000303	80	75 - 125	7	20

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Total Cobalt 0.200 0.250< 0.00082275 - 125 mg/L80

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Cobalt	0.197	mg/L	1	0.250	< 0.000822	79	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Dil. Param Result Units Amount Result Rec. Limit Total Chromium 0.0810 mg/L0.100 < 0.00058381 75 - 125 1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Chromium	0.0790	mg/L	1	0.100	< 0.000583	79	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Param Result Units Dil. Amount Result Limit Rec. < 0.000843 Total Copper 0.118 0.12594 75 - 125 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Total Copper	0.117	mg/L	1	0.125	< 0.000843	94	75 - 125	1	20

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
Total Iron	1.42	$\mathrm{mg/L}$	1	0.500	1.01	82	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil .	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Iron	1.43	mg/L	1	0.500	1.01	84	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
Total Manganese	0.452	mg/L	1	0.250	0.257	78	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil .	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Manganese	0.451	mg/L	1	0.250	0.257	78	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Total Molybdenum	0.472	mg/L	1	0.500	0.036	87	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Molybdenum	0.463	$\mathrm{mg/L}$	1	0.500	0.036	85	75 - 125	2	20

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Param Result Units Dil. AmountResult Rec. Limit Total Nickel 0.2070.25075 - 125 mg/L0.013 78

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil .	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Nickel	0.212	mg/L	1	0.250	0.013	80	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike MatrixRec. Result Limit Param Units Dil. ${
m Amount}$ Result Rec. Total Phosphorous 0.496 mg/L0.500 0.05888 75 - 125 1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil .	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Phosphorous	0.486	mg/L	1	0.500	0.058	86	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Param Result Units Dil. Result Rec. Limit Amount Total Lead 0.464mg/L 0.500 < 0.0032693 75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Lead	0.453	mg/L	1	0.500	< 0.00326	91	75 - 125	2	20

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Total Antimony 0.2350.250< 0.0044075 - 125 mg/L 94

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Antimony	0.220	mg/L	1	0.250	< 0.00440	88	75 - 125	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSMatrix Spike Rec. Dil. Param Result Units Amount Result Rec. Limit Total Selenium 0.423mg/L0.500 < 0.0050885 75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		Rec .		RPD
Param	Result	Units	Dil.	$\mathbf{A}\mathbf{mount}$	Result	Rec.	Limit	RPD	Limit
Total Selenium	0.428	mg/L	1	0.500	< 0.00508	86	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Param Units Dil. Result Rec. Limit Result Amount Total Thallium 0.389mg/L 0.500 < 0.0048878 75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Thallium	0.385	mg/L	1	0.500	< 0.00488	77	75 - 125	1	20

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Param Result Units Dil. ${
m Amount}$ Result Rec. Limit Total Vanadium 0.2230.25075 - 125 mg/L0.013 84

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Vanadium	0.213	mg/L	1	0.250	0.013	80	75 - 125	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike Matrix Rec. Dil. Param Result Units Amount Result Rec. Limit Total Zinc 0.201 mg/L0.250< 0.00046580 75 - 125 1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Zinc	0.220	mg/L	1	0.250	< 0.000465	88	75 - 125	9	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209099

QC Batch: 63391 Date Analyzed: 2009-09-07 Analyzed By: AH Prep Batch: 54106 QC Preparation: 2009-09-07 Prepared By: AH

MSSpike Matrix Rec. Param Result Units Dil. Result Limit Amount Rec. 62.6 - 132 Total Cyanide 0.121 0.120 < 0.0110 101 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Cyanide	0.125	mg/L	1	0.120	< 0.0110	104	62.6 - 132	3	20

Matrix Spike (MS-1) Spiked Sample: 209098

QC Batch: 63393Date Analyzed: 2009-09-10 Analyzed By: MN Prep Batch: QC Preparation: 541122009-09-08 Prepared By: MN

		MS			Spike	Matrix		Rec .
Param		Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Phenol		0.0145	m mg/L	0.922	0.0800	< 0.000469	18	10 - 66.5
2-Chlorophenol		0.0347	$\mathrm{mg/L}$	0.922	0.0800	< 0.000495	43	11.2 - 108
1,4-Dichlorobenzene (para)		0.0324	$\mathrm{mg/L}$	0.922	0.0800	< 0.000406	40	16 - 101
N-Nitrosodi-n-propylamine		0.0430	$\mathrm{mg/L}$	0.922	0.0800	< 0.000675	54	10 - 142
1,2,4-Trichlorobenzene		0.0340	$\mathrm{mg/L}$	0.922	0.0800	< 0.000372	42	18 - 108
${ m Naphthalene}$		0.0347	$\mathrm{mg/L}$	0.922	0.0800	< 0.000451	43	20.2 - 114
4-Chloro-3-methylphenol		0.0474	$\mathrm{mg/L}$	0.922	0.0800	< 0.000481	59	21.5 - 125
${ m Acenaphthylene}$		0.0423	$\mathrm{mg/L}$	0.922	0.0800	< 0.000540	53	25.8 - 121
${ m Acenaphthene}$		0.0413	$\mathrm{mg/L}$	0.922	0.0800	< 0.000390	52	33.5 - 122
$4 ext{-Nitrophenol}$		0.0130	$\mathrm{mg/L}$	0.922	0.0800	< 0.00170	16	10 - 125
2,4-Dinitrotoluene		0.0476	$\mathrm{mg/L}$	0.922	0.0800	< 0.000840	60	53 - 130
Fluorene		0.0445	$\mathrm{mg/L}$	0.922	0.0800	< 0.000597	56	44.6 - 117
${ m Pentachlorophenol}$		0.0163	$\mathrm{mg/L}$	0.922	0.0800	< 0.000401	20	10 - 139
${ m Anthracene}$	14	0.0422	$\mathrm{mg/L}$	0.922	0.0800	< 0.000395	53	57.5 - 115
Phenanthrene		0.0444	$\mathrm{mg/L}$	0.922	0.0800	< 0.000505	56	55.5 - 118
Fluoranthene		0.0471	$\mathrm{mg/L}$	0.922	0.0800	< 0.000583	59	57 - 122
Pyrene	15	0.0399	m mg/L	0.922	0.0800	< 0.000667	50	58.5 - 130
$\operatorname{Benzo}(\operatorname{a}) \operatorname{anthracene}$	16	0.0403	m mg/L	0.922	0.0800	< 0.000486	50	63.4 - 109
$\operatorname{Chrysene}$	17	0.0426	m mg/L	0.922	0.0800	< 0.000588	53	54.7 - 114
$\operatorname{Benzo}(\operatorname{b}) \operatorname{fluoranthene}$	18	0.0375	m mg/L	0.922	0.0800	< 0.000810	47	64.8 - 120
$\operatorname{Benzo}(k)$ fluoranthene		0.0599	$\mathrm{mg/L}$	0.922	0.0800	< 0.000779	75	70.3 - 114
$\operatorname{Benzo}(\operatorname{a})\operatorname{pyrene}$		0.0522	$\mathrm{mg/L}$	0.922	0.0800	< 0.00154	65	63.7 - 120
Indeno(1,2,3-cd)pyrene	19	0.0509	$\mathrm{mg/L}$	0.922	0.0800	< 0.000795	64	65.4 - 119
${ m Dibenzo}({ m a,h}) { m anthracene}$	20	0.0514	$\mathrm{mg/L}$	0.922	0.0800	< 0.000746	64	68.7 - 117
Benzo(g,h,i) perylene		0.0521	${ m mg/L}$	0.922	0.0800	< 0.000875	65	57.2 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Phenol	0.0149	$\mathrm{mg/L}$	0.922	0.0800	< 0.000469	19	10 - 66.5	3	20
2-Chlorophenol	0.0351	$\mathrm{mg/L}$	0.922	0.0800	< 0.000495	44	11.2 - 108	1	20
1,4-Dichlorobenzene (para)	0.0332	mg/L	0.922	0.0800	< 0.000406	42	16 - 101	2	20
N-Nitrosodi-n-propylamine	0.0438	mg/L	0.922	0.0800	< 0.000675	55	10 - 142	2	20
1,2,4-Trichlorobenzene	0.0337	$\mathrm{mg/L}$	0.922	0.0800	< 0.000372	42	18 - 108	1	20
Naphthalene	0.0349	mg/L	0.922	0.0800	< 0.000451	44	20.2 - 114	1	20
$\hbox{4-Chloro-3-methylphenol}$	0.0481	$\mathrm{mg/L}$	0.922	0.0800	< 0.000481	60	21.5 - 125	2	20

 $continued \dots$

¹⁴Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

¹⁵Matrix spike recovery out of control limits due to matrix interference. Result biased low. ¹⁶Matrix spike recovery out of control limits due to matrix interference. Result biased low.

¹⁷ Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

¹⁸Matrix spike recovery out of control limits due to matrix interference. Result biased low.

¹⁹Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

²⁰ Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

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matrix spikes continued										
		MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param		Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Acenaphthylene		0.0432	mg/L	0.922	0.0800	< 0.000540	54	25.8 - 121	2	20
${ m Acenaphthene}$		0.0426	$\mathrm{mg/L}$	0.922	0.0800	< 0.000390	53	33.5 - 122	3	20
4-Nitrophenol		0.0128	$\mathrm{mg/L}$	0.922	0.0800	< 0.00170	16	10 - 125	2	20
2,4-Dinitrotoluene		0.0486	$\mathrm{mg/L}$	0.922	0.0800	< 0.000840	61	53 - 130	2	20
Fluorene		0.0454	$\mathrm{mg/L}$	0.922	0.0800	< 0.000597	57	44.6 - 117	2	20
${ m Pentachlorophenol}$		0.0192	$\mathrm{mg/L}$	0.922	0.0800	< 0.000401	24	10 - 139	16	20
${ m Anthracene}$	21	0.0439	$\mathrm{mg/L}$	0.922	0.0800	< 0.000395	55	57.5 - 115	4	20
Phenanthrene		0.0449	$\mathrm{mg/L}$	0.922	0.0800	< 0.000505	56	55.5 - 118	1	20
Fluoranthene		0.0483	mg/L	0.922	0.0800	< 0.000583	60	57 - 122	2	20
Pyrene	22	0.0408	$\mathrm{mg/L}$	0.922	0.0800	< 0.000667	51	58.5 - 130	2	20
$\operatorname{Benzo}(\operatorname{a}) \operatorname{anthracene}$	23	0.0407	mg/L	0.922	0.0800	< 0.000486	51	63.4 - 109	1	20
$\mathbf{Chrysene}$	24	0.0433	$\mathrm{mg/L}$	0.922	0.0800	< 0.000588	54	54.7 - 114	2	20
${f Benzo}({f b}) {f fluoranthene}$	25	0.0454	$\mathrm{mg/L}$	0.922	0.0800	< 0.000810	57	64.8 - 120	19	20
$\operatorname{Benzo}(k)$ fluoranthene	26	0.0564	$\mathrm{mg/L}$	0.922	0.0800	< 0.000779	70	70.3 - 114	6	20
Benzo(a)pyrene		0.0521	mg/L	0.922	0.0800	< 0.00154	65	63.7 - 120	0	20
Indeno(1,2,3-cd)pyrene		0.0532	mg/L	0.922	0.0800	< 0.000795	66	65.4 - 119	4	20
${ m Dibenzo(a,h)}$ anthracene	27	0.0537	$\mathrm{mg/L}$	0.922	0.0800	< 0.000746	67	68.7 - 117	4	20
$Benzo(g,\!h,\!i)perylene$		0.0536	mg/L	0.922	0.0800	< 0.000875	67	57.2 - 125	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

C .	MS	MSD	TT 14	D.II	Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil .	\mathbf{Amount}	Rec.	Rec .	Limit
2-Fluorophenol	0.0250	0.0247	$\mathrm{mg/L}$	0.922	0.08	31	31	10 - 53.1
Phenol-d5	0.0159	0.0155	$\mathrm{mg/L}$	0.922	0.08	20	19	10 - 36.9
${ m Nitrobenzene-d5}$	0.0419	0.0422	$\mathrm{mg/L}$	0.922	0.08	52	53	23.8 - 108
2-Fluorobiphenyl	0.0443	0.0451	$\mathrm{mg/L}$	0.922	0.08	55	56	15.9 - 127
2,4,6-Tribromophenol	0.0585	0.0595	$\mathrm{mg/L}$	0.922	0.08	73	74	10 - 123
Terphenyl-d14	0.0458	0.0475	mg/L	0.922	0.08	57	59	17.2 - 160

Spiked Sample: 209098 Matrix Spike (MS-1)

QC Batch: Date Analyzed: 2009-09-10 Analyzed By: DS 63425 Prepared By: DS Prep Batch: 54137 QC Preparation: 2009-09-04

	MS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
HMX	1.41	$\mu { m g/L}$	1	2.50	< 0.123	56	10 - 164
RDX	1.63	$\mu { m g}/{ m L}$	1	2.50	< 0.298	65	10 - 147
1,3,5-Trinitrobenzene	1.76	$\mu { m g}/{ m L}$	1	2.50	< 0.339	70	10 - 187

 $continued \dots$

²¹ Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

 $^{^{22}}$ Matrix spike recovery out of control limits due to matrix interference. Result biased low.

 $^{^{23}}$ Matrix spike recovery out of control limits due to matrix interference. Result biased low.

²⁴Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

²⁵ Matrix spike recovery out of control limits due to matrix interference. Result biased low.

²⁶ Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

²⁷ Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

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HELSTF Diesel Spill Groundwater

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muutu	svikes	сонинией		

		MS			Spike	Matrix		$\mathrm{Rec}.$
Param		Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
1,3-Dinitrobenzene		1.87	$\mu \mathrm{g/L}$	1	2.50	< 0.389	75	10 - 155
Nitrobenzene		1.87	$\mu { m g}/{ m L}$	1	2.50	< 0.379	75	10 - 156
Tetryl		1.80	$\mu { m g}/{ m L}$	1	2.50	< 0.413	72	10 - 158
TNT		1.93	$\mu { m g}/{ m L}$	1	2.50	< 0.464	77	21 - 114
4-Amino-DNT		2.19	$\mu { m g}/{ m L}$	1	2.50	< 0.319	88	80 - 120
2-Amino-DNT	28	1.96	$\mu { m g}/{ m L}$	1	2.50	< 0.391	78	80 - 120
2,6-DNT	29	1.64	$\mu { m g}/{ m L}$	1	2.50	< 0.323	66	80 - 120
2,4-DNT	30	1.96	$\mu { m g}/{ m L}$	1	2.50	< 0.366	78	80 - 120
2-NT		1.99	$\mu { m g}/{ m L}$	1	2.50	< 0.379	80	10 - 147
4-NT		1.81	$\mu { m g}/{ m L}$	1	2.50	< 0.398	72	10 - 161
3-NT		2.08	$\mu { m g}/{ m L}$	1	2.50	< 0.346	83	10 - 167

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param		Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
HMX		1.56	$\mu \mathrm{g/L}$	1	2.50	< 0.123	62	10 - 164	10	20
RDX		1.68	$\mu { m g/L}$	1	2.50	< 0.298	67	10 - 147	3	20
1,3,5-Trinitrobenzene		1.95	$\mu { m g/L}$	1	2.50	< 0.339	78	10 - 187	10	20
1,3-Dinitrobenzene		1.94	$\mu { m g/L}$	1	2.50	< 0.389	78	10 - 155	4	20
Nitrobenzene		2.03	$\mu { m g/L}$	1	2.50	< 0.379	81	10 - 156	8	20
Tetryl		2.02	$\mu { m g/L}$	1	2.50	< 0.413	81	10 - 158	12	20
TNT		1.89	$\mu { m g/L}$	1	2.50	< 0.464	76	21 - 114	2	20
4-Amino-DNT		2.40	$\mu { m g/L}$	1	2.50	< 0.319	96	80 - 120	9	20
2-Amino-DNT		2.26	$\mu { m g/L}$	1	2.50	< 0.391	90	80 - 120	14	20
2,6-DNT	31	1.90	$\mu { m g}/{ m L}$	1	2.50	< 0.323	76	80 - 120	15	20
2,4-DNT		2.09	$\mu { m g/L}$	1	2.50	< 0.366	84	80 - 120	6	20
2-NT		1.97	$\mu { m g}/{ m L}$	1	2.50	< 0.379	79	10 - 147	1	20
4-NT		1.92	$\mu { m g}/{ m L}$	1	2.50	< 0.398	77	10 - 161	6	20
3-NT		1.92	$\mu { m g}/{ m L}$	1	2.50	< 0.346	77	10 - 167	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			Spike	MS	MSD	$\mathrm{Rec}.$
$\mathbf{Surrogate}$	Result	Result	Units	$\mathrm{Dil}.$	${f Amount}$	$\mathrm{Rec.}$	Rec .	Limit
1,2-Dinitrobenzene	3.49	3.68	$\mu \mathrm{g/L}$	1	2.5	140	147	10 - 222

Matrix Spike (MS-1) Spiked Sample: 209230

QC Batch: Analyzed By: AH 63441Date Analyzed: 2009-09-09 Prep Batch: 54150 QC Preparation: 2009-09-09 Prepared By: AH

 $[\]overline{^{28}\text{Matrix spike recovery out of control limits due}} \text{ to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.}$

²⁹ Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

³⁰ Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

³¹ Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

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	MS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Kieldahl Nitrogen - N	44.5	mø/L	1	50.0	2.52	84	61 2 - 118

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Kjeldahl Nitrogen - N	46.2	$\mathrm{mg/L}$	1	50.0	2.52	87	61.2 - 118	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209097

QC Batch: 63462 Date Analyzed: 2009-09-11 Analyzed By: RR
Prep Batch: 54154 QC Preparation: 2009-09-11 Prepared By: KV

MSSpike Matrix Rec. Param Result Units Dil. AmountResult Rec. Limit Dissolved Chromium 0.0990mg/L0.100 0.003 96 75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Dissolved Chromium	0.0990	mg/L	1	0.100	0.003	96	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63545 Date Analyzed: 2009-09-15 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike MatrixRec. Param Result Units Dil. Amount Result Rec. Limit 269 10 50.0 212 Total Calcium mg/L114 75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil .	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Calcium	264	mg/L	10	50.0	212	104	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63545 Date Analyzed: 2009-09-15 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

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	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec .	Limit
Total Potassium	1.49	mg/L	1	50.0	04.5	95	75 - 195

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Total Potassium	152	$\mathrm{mg/L}$	1	50.0	94.5	115	75 - 125	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63545 Date Analyzed: 2009-09-15 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike MatrixRec. Param Result Units Dil. AmountResult Rec. Limit Total Magnesium 10 542 104 594 mg/L50.0 75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Magnesium	602	mg/L	10	50.0	542	120	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63545 Date Analyzed: 2009-09-15 Analyzed By: RR
Prep Batch: 54079 QC Preparation: 2009-09-09 Prepared By: KV

MSSpike MatrixRec. Param Result Units Dil. Amount Result Rec. Limit 2500 100 50.0 2450 100 75 - 125 Total Sodium mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Sodium	2490	mg/L	100	50.0	2450	80	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 208953

QC Batch: 63674 Date Analyzed: 2009-09-16 Analyzed By: JR
Prep Batch: 54363 QC Preparation: 2009-09-16 Prepared By: JR

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	MS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Fluoride	10900	mø/L	2222	11100	< 96.4	9.8	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Fluoride	10900	mg/L	2222	11100	< 96.4	98	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209098

QC Batch: 63677 Date Analyzed: 2009-09-03 Analyzed By: JR Prep Batch: 54366 QC Preparation: 2009-09-03 Prepared By: JR

	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
Bromide	2670	$\mathrm{mg/L}$	556	2780	<21.9	96	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Bromide	2670	mg/L	556	2780	<21.9	96	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209098

QC Batch: 63677 Date Analyzed: 2009-09-03 Analyzed By: JR
Prep Batch: 54366 QC Preparation: 2009-09-03 Prepared By: JR

	MS			Spike	Matrix		Rec .
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Chloride	16000	mg/L	556	13900	2200	99	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Chloride	15900	mg/L	556	13900	2200	98	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209098

QC Batch: 63677 Date Analyzed: 2009-09-03 Analyzed By: JR
Prep Batch: 54366 QC Preparation: 2009-09-03 Prepared By: JR

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	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Sulfate	19700	mg/L	556	13900	5640	101	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Sulfate	19700	$\mathrm{mg/L}$	556	13900	5640	101	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209098

QC Batch: 63678 Date Analyzed: 2009-09-17 Analyzed By: KV Prep Batch: QC Preparation: 543672009-09-17 Prepared By:

MSSpike Matrix Rec. Param Result Units Amount Result Rec. Limit Total Organic Carbon 49.1 1.16 96 mg/L50.0 66.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Organic Carbon	49.3	mg/L	1	50.0	1.16	96	66.9 - 121	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 209096

QC Batch: 63681 Date Analyzed: 2009-09-17 Analyzed By: KV Prep Batch: 54370QC Preparation: 2009-09-17 Prepared By: KV

MSSpike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit 0.183 0.200 0.124 80 - 120 Nitrate and Nitrite as N mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param		Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Nitrate and Nitrite as N	33	0.192	mg/L	2	0.200	0.124	34	80 - 120	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (CCV-1)

QC Batch: 63239 Date Analyzed: 2009-09-03 Analyzed By: ER

³²Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

³³Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

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Analyzed

2009-09-03

Limits

80 - 120

			HELST	TF Diesel Spill	Groundwater		
Param	Flag	${ m Units}$	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
GRO		$\mathrm{mg/L}$	1.00	1.07	107	80 - 120	2009-09-03
Standard	(CCV-2)						
QC Batch:	63239		Date Ar	nalyzed: 2009-	09-03	Anal	lyzed By: ER
			$\begin{array}{c} {\rm CCVs} \\ {\rm True} \end{array}$	$\begin{array}{c} {\rm CCVs} \\ {\rm Found} \end{array}$	${ m CCVs} \ { m Percent}$	Percent Recovery	Date

Standard (ICV-1)

Flag

Units

mg/L

Conc.

1.00

Param

GRO

QC Batch: 63280 Date Analyzed: 2009-09-04 Analyzed By: TP

Conc.

1.02

Recovery

102

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Total Mercury		$_{ m mg/L}$	0.00100	0.00108	108	90 - 110	2009-09-04

Standard (CCV-1)

QC Batch: 63280 Date Analyzed: 2009-09-04 Analyzed By: TP

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Total Mercury		mg/L	0.00100	0.00104	104	90 - 110	2009-09-04

Standard (CCV-1)

QC Batch: 63307 Date Analyzed: 2009-09-07 Analyzed By: AW

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
DRO		$_{ m mg/L}$	250	286	114	80 - 120	2009-09-07

Standard (CCV-2)

QC Batch: 63307 Date Analyzed: 2009-09-07 Analyzed By: AW Report Date: October 1, 2009 Work Order: 9090320 Page Number: 63 of 80

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			HEI	LSTF Diesel	Spill Gro	oundwater		
Danam	Flag	$_{ m Units}$	CCVs True Conc.	CCV Foun Cond	ıd	CCVs Percent Recovery	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Param DRO	riag	mg/L	250	262		105	80 - 120	2009-09-07
DICO		1116/12	200	202		100	00 120	2000 00 01
Standard	(CCV-1)							
QC Batch:	63330		Date	Analyzed:	2009-09-0)2	Analy	zed By: MD
				CCVs	CCVs	CCVs	Percent	
				True	Found	$\operatorname{Percent}$	Recovery	Date
Param		Flag	Units	Conc .	Conc .	$\operatorname{Recovery}$	Limits	${ m Analyzed}$
Hexavalent	Chromium		mg/L	0.500	0.505	101	90 - 110	2009-09-02
Standard	(CCV-2)							
QC Batch:	63330		Date	Analyzed:	2009-09-0)2	Analy	zed By: MD
				CCVs	CCVs	CCVs	Percent	
				True	Found	$\operatorname{Percent}$	Recovery	Date
Param		Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Hexavalent	Chromium		m mg/L	0.500	0.508	102	90 - 110	2009-09-02
Standard	(ICV-1)							
QC Batch:	63341		Date	Analyzed:	2009-09-	02	Anal	yzed By: JG
			CCVs	CCV	$r_{ m S}$	CCVs	Percent	
			True	Foun	.d	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc	3.	Recovery	Limits	${ m Analyzed}$
рН		s.u.	7.00	7.01	:	100	98 - 102	2009-09-02
Standard	(CCV-1)							
QC Batch:	` ,		Date	Analyzed:	2009-09-	02	Anal	yzed By: JG
			CCVs	CCV	$\tau_{ m S}$	CCVs	Percent	
			True	Foun		Percent	Recovery	Date
Param	Flag	Units	Conc.	Cond		Recovery	Limits	Analyzed
	~6	C 11100		50110			2222200	2000.00.00

Standard (ICV-1)

рН

QC Batch: 63370 Date Analyzed: 2009-09-05 Analyzed By: AH

7.00

100

7.00

 $s.\,u.$

98 - 102

2009-09-02

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IELSTF Diesel Spill Groundwater

CCVs

Percent

Recovery

100

Percent

Recovery

Limits

85 - 115

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Date

Analyzed

2009-09-05

Analyzed By: RR

HELSTF Diesel Spill Groundwater							
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Ammonia-N		$\mathrm{mg/L}$	5.00	4.93	99	85 - 115	2009-09-05
Standard (CC	CV-1)						
QC Batch: 633	370		Date Analy	vzed: 2009-09	-05	Anal	yzed By: AH

CCVs

Found

 ${\rm Conc.}$

4.98

 ${\rm CCVs}$

True

Conc.

5.00

${\bf Standard}$	(ICV-1)

Flag

Param

Ammonia-N

QC Batch:	63374	Date Analyzed:	2009-09-09

Units

mg/L

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Total Silver		m mg/L	0.250	0.254	102	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63374	Date Analyzed: 2009-09-09	Analyzed By: RR
-----------------	---------------------------	-----------------

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	Analyzed
Total Aluminum		mg/L	1.00	1.02	102	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63374	Date Analyzed:	2009-09-09	Analyzed By:	RR
QC Datch. 03374	Date Anaryzeu.	∆009-09-09	Anaryzeu by.	1111

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Total Arsenic		mg/L	2.00	2.02	101	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR

Work Order: 9090320

HELSTF Diesel Spill Groundwater

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			HELSTF I	Diesel Spill Gr	oundwater		
Param	Flag	${ m Units}$	CCVs True Conc.	CCVs Found Conc.	$egin{array}{c} ext{CCVs} \ ext{Percent} \ ext{Recovery} \end{array}$	Percent Recovery Limits	$egin{array}{c} { m Date} \\ { m Analyzed} \end{array}$
Total Barium		$\mathrm{mg/L}$	1.00	1.03	103	90 - 110	2009-09-09
Standard (ICV-	-1)						
QC Batch: 6337	4		Date Analyz	zed: 2009-09-	.09	Analy	yzed By: RR
Param Total Beryllium	Flag	Units mg/L	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits 90 - 110	Date Analyzed 2009-09-09
Standard (ICV-	,			1 2000 00	00		la an
QC Batch: 6337	4		Date Analyz	zed: 2009-09-	.09	Analy	yzed By: RR
Param	Flag	Units	$egin{array}{c} \mathrm{CCVs} \ \mathrm{True} \ \mathrm{Conc.} \end{array}$	$\begin{array}{c} { m CCVs} \\ { m Found} \\ { m Conc.} \end{array}$	$egin{array}{c} ext{CCVs} \ ext{Percent} \ ext{Recovery} \end{array}$	Percent Recovery Limits	$\begin{array}{c} {\rm Date} \\ {\rm Analyzed} \end{array}$
Total Cadmium		$\mathrm{mg/L}$	1.00	1.05	105	90 - 110	2009-09-09
Standard (ICV-QC Batch: 6337	•		Date Analyz	zed: 2009-09-	.09	Analy	yzed By: RR
			CCVs	CCVs	CCVs	Percent	
Param	Flag	Units	True Conc.	Found Conc.	Percent Recovery	Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Total Cobalt		m mg/L	1.00	0.994	99	90 - 110	2009-09-09
Standard (ICV-QC Batch: 6337	,		Date Analyz	zed: 2009-09-	.09	${ m Analy}$	yzed By: RR
Param	Flag	Units	CCVs True Conc.	$\begin{array}{c} { m CCVs} \\ { m Found} \\ { m Conc.} \end{array}$	CCVs Percent Recovery	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Total Chromium	r iag	mg/L	1.00	1.04	104	90 - 110	2009-09-09
		8/	1.00	1101		00 110	_000 00 00

Standard (ICV-1)

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR

Work Order: 9090320

HELSTF Diesel Spill Groundwater

			$\stackrel{ ext{CCVs}}{ ext{-}}$	CCVs	$_{ m CCVs}$	Percent	_
			True	Found	$\operatorname{Percent}$	$\operatorname{Recovery}$	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Total Copper		$\mathrm{mg/L}$	1.00	1.02	102	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Analyzed By: RR

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			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Iron		$\mathrm{mg/L}$	1.00	1.04	104	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Manganese		$\mathrm{mg/L}$	1.00	0.999	100	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Molybdenum		mg/L	1.00	1.01	101	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Analyzed By: RR

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Nickel		mg/L	1.00	1.00	100	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Report Date: October 1, 2009 Work Order: 9090320

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Param	Flag	Units	CCVs True Conc.	$\begin{array}{c} {\rm CCVs} \\ {\rm Found} \\ {\rm Conc.} \end{array}$	CCVs Percent Recovery	Percent Recovery Limits	$egin{aligned} ext{Date} \ ext{Analyzed} \end{aligned}$
Total Phosphorous		$\mathrm{mg/L}$	5.00	4.97	99	90 - 110	2009-09-09
Standard (ICV-1)							

QC Batch: 63374

Date Analyzed: 2009-09-09

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Total Lead		$\mathrm{mg/L}$	2.00	2.08	104	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Antimony		$\mathrm{mg/L}$	2.00	2.04	102	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Selenium		$\mathrm{mg/L}$	1.00	1.03	103	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Analyzed By: RR

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	Analyzed
Total Thallium		$\mathrm{mg/L}$	5.00	5.14	103	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Work Order: 9090320

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Teeport Base. Octob	port Date. October 1, 2005			Diesel Spill Gr	rage rvamber. 00 of ou		
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Vanadium		m mg/L	1.00	1.05	105	90 - 110	2009-09-09
Standard (ICV-1)							
QC Batch: 63374			Date Analyz	zed: 2009-09-	-09	Analy	yzed By: RR
Param Fl Total Zinc	\log	Units mg/L	CCVs True Conc.	CCVs Found Conc. 1.02	CCVs Percent Recovery 102	Percent Recovery Limits 90 - 110	Date Analyzed 2009-09-09
G. 1 1/GGV 1	`						
Standard (CCV-1)						
QC Batch: 63374			Date Analyz	zed: 2009-09-	-09	Analy	yzed By: RR
Param I	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Total Silver	148	mg/L	0.125	0.127	102	90 - 110	2009-09-09
Standard (CCV-1 QC Batch: 63374)		Date Analyz	zed: 2009-09-	-09	Anal	yzed By: RR
			$rac{ ext{CCVs}}{ ext{True}}$	${ m CCVs} \ { m Found}$	$rac{ ext{CCVs}}{ ext{Percent}}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Aluminum		mg/L	1.00	0.993	99	90 - 110	2009-09-09
Standard (CCV-1)						
QC Batch: 63374			Date Analyz	zed: 2009-09-	-09	Anal	yzed By: RR
			CCVs True	CCVs Found	${ m CCVs} \ { m Percent} \ { m -}$	Percent Recovery	Date

Standard (CCV-1)

Flag

 ${\bf Units}$

mg/L

Param

Total Arsenic

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR

 ${\rm Conc.}$

1.02

Recovery

102

Limits

90 - 110

 ${\bf Analyzed}$

2009-09-09

 ${\rm Conc.}$

1.00

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	,		oundwater	0			
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Barium	<u> </u>	$\mathrm{mg/L}$	1.00	1.02	102	90 - 110	2009-09-09
Standard (CCV	⁷ -1)						
QC Batch: 6337	74		Date Analyz	zed: 2009-09-	-09	Anal	yzed By: RR
Param	Flag	Units	$egin{array}{c} \mathrm{CCVs} \\ \mathrm{True} \\ \mathrm{Conc.} \end{array}$	CCVs Found Conc.	$egin{array}{c} ext{CCVs} \ ext{Percent} \ ext{Recovery} \end{array}$	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Total Beryllium	riag	mg/L	1.00	1.00	100	90 - 110	2009-09-09
			${ m CCVs} \ { m True}$	$\begin{array}{c} {\rm CCVs} \\ {\rm Found} \end{array}$	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Cadmium	8	m mg/L	1.00	1.04	104	90 - 110	2009-09-09
Standard (CCV QC Batch: 6337	,		Date Analyz	zed: 2009-09-	-09	Anal	yzed By: RR
			$rac{ ext{CCVs}}{ ext{True}}$	${ m CCVs} \ { m Found}$	$rac{ ext{CCVs}}{ ext{Percent}}$	Percent Recovery	Date
			Tiuc			•	
Param Total Cobalt	Flag	Units mg/L	Conc. 1.00	Conc. 1.00	Recovery 100	Limits 90 - 110	Analyzed 2009-09-09

 $QC\ Batch:\ 63374$ Date Analyzed: 2009-09-09 Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Total Chromium		$\mathrm{mg/L}$	1.00	1.02	102	90 - 110	2009-09-09

Standard (CCV-1)

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR

Work Order: 9090320

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			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	$\operatorname{Limits}^{\circ}$	${\bf Analyzed}$
Total Copper		$\mathrm{mg/L}$	1.00	1.00	100	90 - 110	2009-09-09

Standard (CCV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Iron		m mg/L	1.00	1.02	102	90 - 110	2009-09-09

Standard (CCV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Manganese		$\mathrm{mg/L}$	1.00	1.01	101	90 - 110	2009-09-09

Standard (CCV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Molybdenum		$_{ m mg/L}$	1.00	0.989	99	90 - 110	2009-09-09

Standard (CCV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Analyzed By: RR

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Nickel		$_{ m mg/L}$	1.00	0.993	99	90 - 110	2009-09-09

Standard (CCV-1)

QC Batch: 63374

Date Analyzed: 2009-09-09

Work Order: 9090320 HELSTF Diesel Spill Ground Report Date: October 1, 2009

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Date

 ${\bf Analyzed}$

2009-09-09

			HELSTF D	iesel Spill Gro	oundwater		
Param Total Phosphorous	Flag	$\frac{\rm Units}{\rm mg/L}$	CCVs True Conc. 5.00	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits 90 - 110	Date Analyzed 2009-09-09
10tai i nospiiotous		1116/12	0.00	1.00	100	50 110	2000 00 00
Standard (CCV-1))						
QC Batch: 63374			Date Analyz	ed: 2009-09-	09	Anal	yzed By: RR
	${ m ag}$	Units	CCVs True Conc.	CCVs Found Conc.	${ m CCVs} \ { m Percent} \ { m Recovery}$	Percent Recovery Limits	$\begin{array}{c} {\rm Date} \\ {\rm Analyzed} \end{array}$
Total Lead		mg/L	1.00	1.01	101	90 - 110	2009-09-09
Standard (CCV-1) QC Batch: 63374)		Date Analyz	ed: 2009-09-	09	$Anal_{i}$	yzed By: RR
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Antimony		m mg/L	1.00	0.997	100	90 - 110	2009-09-09
Standard (CCV-1))						
QC Batch: 63374			Date Analyz	ed: 2009-09-	Analyzed By: RR		
Param	Flag	Units	${ m CCVs} \ { m True} \ { m Conc.}$	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Total Selenium	Tag	mg/L	1.00	1.01	101	90 - 110	2009-09-09
		0/					
Standard (CCV-1))						
QC Batch: 63374			Date Analyz	ed: 2009-09-	09	Anal	yzed By: RR
			CCVs	CCVs	$_{ m CCVs}$	Percent	D.

Standard (CCV-1)

Flag

Units

mg/L

Param

Total Thallium

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR

Found

 ${\rm Conc.}$

1.02

Percent

Recovery

102

Recovery

Limits

90 - 110

True

 ${\rm Conc.}$

1.00

			$rac{ ext{CCVs}}{ ext{True}}$	${ m CCVs} \ { m Found}$	$egin{array}{c} ext{CCVs} \ ext{Percent} \end{array}$	Percent Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Total Vanadium		mg/L	1.00	1.04	104	90 - 110	2009-09-09

Standard (CCV-1)

QC Batch: 63374 Date Analyzed: 2009-09-09 Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	Percent	$\operatorname{Recovery}$	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Total Zinc		$_{ m mg/L}$	1.00	1.02	102	90 - 110	2009-09-09

Standard (ICV-1)

QC Batch: 63391 Date Analyzed: 2009-09-07 Analyzed By: AH

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	Analyzed
Total Cyanide		$\mathrm{mg/L}$	0.120	0.118	98	85 - 115	2009-09-07

Standard (CCV-1)

QC Batch: 63391 Date Analyzed: 2009-09-07 Analyzed By: AH

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Cyanide		$_{ m mg/L}$	0.120	0.124	103	85 - 115	2009-09-07

Standard (CCV-1)

QC Batch: 63393 Date Analyzed: 2009-09-10 Analyzed By: MN

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Phenol		m mg/L	60.0	58.5	98	80 - 120	2009-09-10
1,4-Dichlorobenzene (para)		m mg/L	60.0	58.3	97	80 - 120	2009-09-10
2-Nitrophenol		m mg/L	60.0	65.7	110	80 - 120	2009-09-10
2,4-Dichlorophenol		m mg/L	60.0	66.0	110	80 - 120	2009-09-10
${\it Hexachlorobutadiene}$		$\mathrm{mg/L}$	60.0	58.3	97	80 - 120	2009-09-10
4-Chloro-3-methylphenol		m mg/L	60.0	70.2	117	80 - 120	2009-09-10
2,4,6-Trichlorophenol		m mg/L	60.0	65.3	109	80 - 120	2009-09-10
${ m Acenaphthene}$		m mg/L	60.0	61.1	102	80 - 120	2009-09-10
Diphenylamine		$\mathrm{mg/L}$	60.0	60.0	100	80 - 120	2009-09-10

 $continued \dots$

 ${\it Work~Order:~9090320} \\ {\it HELSTF~Diesel~Spill~Groundwater}$

62.5

104

80 - 120

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2009-09-10

$standard\ continued\ \dots$							
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Pentachlorophenol		$\mathrm{mg/L}$	60.0	60.2	100	80 - 120	2009-09-10
Fluoranthene		m mg/L	60.0	60.4	101	80 - 120	2009-09-10
Di-n-octylphthalate		m mg/L	60.0	68.3	114	80 - 120	2009-09-10

60.0

mg/L

Surrogate	Flag	Result	Units	Dilution	$egin{aligned} ext{Spike} \ ext{Amount} \end{aligned}$	Percent Recovery	$rac{ m Recovery}{ m Limit}$
2-Fluorophenol		62.4	$\mathrm{mg/L}$	1	60.0	104	80 - 120
Phenol-d5		59.8	$\mathrm{mg/L}$	1	60.0	100	80 - 120
${ m Nitrobenzene-d5}$		60.5	$\mathrm{mg/L}$	1	60.0	101	80 - 120
2-Fluorobiphenyl		59.6	${ m mg/L}$	1	60.0	99	80 - 120
2,4,6-Tribromophenol		69.8	${ m mg/L}$	1	60.0	116	80 - 120
Terphenyl-d14		57.4	$\mathrm{mg/L}$	1	60.0	96	80 - 120

Standard (CCV-2)

Benzo(a)pyrene

QC Batch: 63393 Date Analyzed: 2009-09-10 Analyzed By: MN

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc .	Recovery	Limits	Analyzed
Phenol		m mg/L	60.0	54.6	91	80 - 120	2009-09-10
1,4-Dichlorobenzene (para)		$\mathrm{mg/L}$	60.0	59.5	99	80 - 120	2009-09-10
2-Nitrophenol		$\mathrm{mg/L}$	60.0	63.9	106	80 - 120	2009-09-10
2,4-Dichlorophenol		$\mathrm{mg/L}$	60.0	63.6	106	80 - 120	2009-09-10
${ m Hexachlorobutadiene}$		$\mathrm{mg/L}$	60.0	58.7	98	80 - 120	2009-09-10
4-Chloro-3-methylphenol		m mg/L	60.0	68.9	115	80 - 120	2009-09-10
2,4,6-Trichlorophenol		$\mathrm{mg/L}$	60.0	59.6	99	80 - 120	2009-09-10
${ m Acenaphthene}$		$\mathrm{mg/L}$	60.0	60.2	100	80 - 120	2009-09-10
Diphenylamine		$\mathrm{mg/L}$	60.0	59.3	99	80 - 120	2009-09-10
${ m Pentachlorophenol}$	34	m mg/L	60.0	41.9	70	80 - 120	2009-09-10
Fluoranthene		$\mathrm{mg/L}$	60.0	59.8	100	80 - 120	2009-09-10
Di-n-octylphthalate		m mg/L	60.0	69.6	116	80 - 120	2009-09-10
Benzo(a)pyrene		m mg/L	60.0	67.8	113	80 - 120	2009-09-10

					Spike	$\operatorname{Percent}$	$\operatorname{Recovery}$
$\mathbf{Surrogate}$	Flag	Result	Units	$\operatorname{Dilution}$	${f Amount}$	Recovery	Limit
2-Fluorophenol		61.1	m mg/L	1	60.0	102	80 - 120
${ m Phenol-d5}$		57.9	m mg/L	1	60.0	96	80 - 120
${ m Nitrobenzene-d5}$		60.5	${ m mg/L}$	1	60.0	101	80 - 120
2-Fluorobiphenyl		58.9	${ m mg/L}$	1	60.0	98	80 - 120
2,4,6-Tribromophenol		70.2	${ m mg/L}$	1	60.0	117	80 - 120
Terphenyl-d14		56.4	$\mathrm{mg/L}$	1	60.0	94	80 - 120

³⁴Control analyte out of CCV control limits. Result biased low.

HELSTF Diesel Spill Groundwater

Standard (ICV-1)

QC Batch: 63425 Date Analyzed: 2009-09-10 Analyzed By: DS

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
HMX		$\mu \mathrm{g/L}$	500	505	101	85 - 115	2009-09-10
RDX		$\mu { m g}/{ m L}$	500	478	96	85 - 115	2009-09-10
1,3,5-Trinitrobenzene		$\mu { m g}/{ m L}$	500	490	98	85 - 115	2009-09-10
1,3-Dinitrobenzene		$\mu { m g}/{ m L}$	500	507	101	85 - 115	2009-09-10
${ m Nitrobenzene}$		$\mu { m g}/{ m L}$	500	507	101	85 - 115	2009-09-10
Tetryl		$\mu { m g}/{ m L}$	500	485	97	85 - 115	2009-09-10
TNT		$\mu { m g}/{ m L}$	500	481	96	85 - 115	2009-09-10
4-Amino-DNT		$\mu { m g}/{ m L}$	500	518	104	85 - 115	2009-09-10
$2 ext{-Amino-DNT}$		$\mu { m g}/{ m L}$	500	540	108	85 - 115	2009-09-10
2,6-DNT		$\mu { m g}/{ m L}$	500	466	93	85 - 115	2009-09-10
2,4-DNT		$\mu { m g}/{ m L}$	500	520	104	85 - 115	2009-09-10
2-NT		$\mu { m g}/{ m L}$	500	503	101	85 - 115	2009-09-10
4-NT		$\mu { m g}/{ m L}$	500	433	87	85 - 115	2009-09-10
3-NT		$\mu { m g}/{ m L}$	500	493	99	85 - 115	2009-09-10

					Spike	$\operatorname{Percent}$	$\operatorname{Recovery}$
Surrogate	Flag	Result	Units	Dilution	${f Amount}$	Recovery	Limit
1,2-Dinitrobenzene		456	$\mu \mathrm{g/L}$	1	500	91	85 - 115

Standard (CCV-1)

QC Batch: 63425 Date Analyzed: 2009-09-10 Analyzed By: DS

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${\bf Analyzed}$
HMX		$\mu { m g/L}$	500	545	109	85 - 115	2009-09-10
RDX		$\mu { m g}/{ m L}$	500	461	92	85 - 115	2009-09-10
1,3,5-Trinitrobenzene		$\mu { m g}/{ m L}$	500	483	97	85 - 115	2009-09-10
1,3-Dinitrobenzene		$\mu { m g}/{ m L}$	500	516	103	85 - 115	2009-09-10
${ m Nitrobenzene}$		$\mu { m g}/{ m L}$	500	511	102	85 - 115	2009-09-10
Tetryl		$\mu { m g}/{ m L}$	500	467	93	85 - 115	2009-09-10
TNT		$\mu \mathrm{g}/\mathrm{L}$	500	486	97	85 - 115	2009-09-10
4-Amino-DNT		$\mu \mathrm{g}/\mathrm{L}$	500	538	108	85 - 115	2009-09-10
2-Amino-DNT		$\mu \mathrm{g}/\mathrm{L}$	500	551	110	85 - 115	2009-09-10
2,6-DNT		$\mu { m g}/{ m L}$	500	502	100	85 - 115	2009-09-10
2,4-DNT		$\mu \mathrm{g}/\mathrm{L}$	500	552	110	85 - 115	2009-09-10
2-NT		$\mu \mathrm{g}/\mathrm{L}$	500	535	107	85 - 115	2009-09-10
4-NT		$\mu { m g}/{ m L}$	500	500	100	85 - 115	2009-09-10
3-NT		$\mu { m g}/{ m L}$	500	507	101	85 - 115	2009-09-10

 $continued \dots$

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 ${\it HELSTF\ Diesel\ Spill\ Groundwater}$

$standard\ continued\ \dots$					Spike	Percent	Recover
Surrogate	Flag	Result	Units	Dilution	$\mathbf{A}\mathbf{mount}$	Recovery	Limit
					Spike	Percent	Recover
Surrogate	Flag	Result	$_{ m Units}$	$\operatorname{Dilution}$	Amount	Recovery	Limit
1,2-Dinitrobenzene		491	$\mu \mathrm{g/L}$	1	500	98	85 - 115
·			, 0,				
Standard (ICV-1)							
QC Batch: 63441		Da	te Analyzed:	2009-09-09		Analyz	zed By: AH
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param		Flag Uni	its Conc.	Conc .	Recovery	$\operatorname{Limits}^{\circ}$	${ m Analyzed}$
Total Kjeldahl Nitrogen -	- N	mg	/L 5.00	5.21	104	85 - 115	2009-09-0
Standard (CCV-1)							
,		т.		2000 00 00			1 D 4 T
QC Batch: 63441		Da	te Analyzed:	2009-09-09		Analyz	zed By: AH
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param		Flag Uni	its Conc.	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Total Kjeldahl Nitrogen -	- N	mg	/L 5.00	4.93	99	85 - 115	2009-09-0
Standard (ICV-1)							
QC Batch: 63462		Da	te Analyzed:	2009-09-11		Analyz	zed By: RR
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Chromium	0	m mg/L	1.00	1.03	103	90 - 110	2009-09-1
Standard (CCV-1)							
QC Batch: 63462		Da	te Analyzed:	2009-09-11		Analy	zed By: RR
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag		Conc.	Conc .	$\operatorname{Recovery}$	Limits	A naly zed
Dissolved Chromium		$\mathrm{mg/L}$	1.00	1.02	102	90 - 110	2009-09-1

Date Analyzed: 2009-09-03

Analyzed By: MD

Standard (ICV-1)

QC Batch: 63473

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 76 of 80

HELSTF Diesel Spill Groundwater

			${ m CCVs} \ { m True}$	${ m CCVs}$ Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc .	Conc .	$\operatorname{Recovery}$	Limits	${ m Analyzed}$
Total Dissolved Solids		$_{ m mg/L}$	1000	994	99	90 - 110	2009-09-03

Standard (CCV-1)

QC Batch: 63473 Date Analyzed: 2009-09-03 Analyzed By: MD

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Dissolved Solids		mg/L	1000	989	99	90 - 110	2009-09-03

Standard (ICV-1)

QC Batch: 63527 Date Analyzed: 2009-09-10 Analyzed By: JG

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc.	Recovery	Limits	${\bf Analyzed}$
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		90 - 110	2009-09-10
Carbonate Alkalinity		mg/L as $CaCo3$	0.00	240		90 - 110	2009-09-10
Bicarbonate Alkalinity		mg/L as $CaCo3$	0.00	10.0		90 - 110	2009-09-10
Total Alkalinity		mg/L as $CaCo3$	250	250	100	90 - 110	2009-09-10

Standard (CCV-1)

QC Batch: 63527 Date Analyzed: 2009-09-10 Analyzed By: JG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc .	Recovery	Limits	Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		90 - 110	2009-09-10
Carbonate Alkalinity		mg/L as $CaCo3$	0.00	240		90 - 110	2009-09-10
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	10.0		90 - 110	2009-09-10
Total Alkalinity		mg/L as CaCo3	250	250	100	90 - 110	2009-09-10

Standard (ICV-1)

QC Batch: 63545 Date Analyzed: 2009-09-15 Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Calcium		$\mathrm{mg/L}$	50.0	50.7	101	90 - 110	2009-09-15

Report Dat	e: October 1, 2009		Work (HELSTF Dies	Order: 90903 sel Spill Gro		Page Nu	mber: 77 of 80
Standard ((ICV-1)						
QC Batch:	63545		Date Analyzed	: 2009-09-1	15	Analy	zed By: RR
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	$\begin{array}{c} {\rm Date} \\ {\rm Analyzed} \end{array}$
Total Potass		mg/L	50.0	51.7	103	90 - 110	2009-09-15
Standard (,						
QC Batch:	63545		Date Analyzed	: 2009-09-1	15	Analy	zed By: RR
Param	Flag	Units	CCVs True Conc.	${ m CCVs} \ { m Found} \ { m Conc.}$	$egin{array}{c} ext{CCVs} \ ext{Percent} \ ext{Recovery} \end{array}$	$egin{array}{l} ext{Percent} \ ext{Recovery} \ ext{Limits} \end{array}$	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Total Magne	esium	$\mathrm{mg/L}$	50.0	52.4	105	90 - 110	2009-09-15
Standard ((ICV-1)						
QC Batch:	63545		Date Analyzed	: 2009-09-1	15	Analy	zed By: RR
Param	Flag	${ m Units}$	${ m CCVs} \ { m True} \ { m Conc.}$	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	$\begin{array}{c} \text{Date} \\ \text{Analyzed} \end{array}$
Total Sodium		mg/L	50.0	51.6	103	90 - 110	2009-09-15

True	Found	$\operatorname{Percent}$	Recovery	Date
Param Flag Units Conc.	Conc .	Recovery	Limits	${ m Analyzed}$
Total Sodium mg/L 50.0	51.6	103	90 - 110	2009-09-15

Standard (CCV-1)

QC Batch:	63545	Date Analyzed:	2009-09-	15	Analyz	ed By: RR
		00.0	CCVs Found	CCVs Percent	Percent Recovery	Date

			CCVs	$\rm CCVs$	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Calcium		$\mathrm{mg/L}$	50.0	48.9	98	90 - 110	2009-09-15

Standard (CCV-1)

 $QC \ Batch: \ 63545$ Date Analyzed: 2009-09-15 Analyzed By: RR

			CCVs	CCVs	$\mathrm{CC}\mathrm{Vs}$	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	Analyzed
Total Potassium		mg/L	50.0	50.6	101	90 - 110	2009-09-15

Standard (CCV-1)

QC Batch: 63545Date Analyzed: 2009-09-15 Analyzed By: RR Report Date: October 1, 2009 Work Order: 9090320

HELSTF Diesel Spill Groundwater

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			1122011 21000	or opin oroan			
			$rac{ ext{CCVs}}{ ext{True}}$	$\begin{array}{c} {\rm CCVs} \\ {\rm Found} \end{array}$	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	$\operatorname{Recovery}$	Limits	${ m Analyzed}$
Total Magnesium		${ m mg/L}$	50.0	49.2	98	90 - 110	2009-09-15
Standard (CCV-1)							
QC Batch: 63545			Date Analyzed:	2009-09-15		Analy	zed By: RR

			$rac{ ext{CCVs}}{ ext{True}}$	${ m CCVs} \ { m Found}$	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Sodium		$\mathrm{mg/L}$	50.0	50.2	100	90 - 110	2009-09-15

Standard (CCV-1)

QC Batch: 63674 Date Analyzed: 2009-09-16 Analyzed By: JR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Fluoride		$_{ m mg/L}$	5.00	5.06	101	90 - 110	2009-09-16

Standard (CCV-2)

QC Batch: 63674 Date Analyzed: 2009-09-16 Analyzed By: JR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Fluoride		$_{ m mg/L}$	5.00	5.16	103	90 - 110	2009-09-16

Standard (CCV-1)

QC Batch: 63677 Date Analyzed: 2009-09-03 Analyzed By: JR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Bromide		$_{ m mg/L}$	5.00	4.54	91	90 - 110	2009-09-03

Standard (CCV-1)

QC Batch: 63677 Date Analyzed: 2009-09-03 Analyzed By: JR

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 79 of 80

	CCVs True Conc. 25.0	CCVs Found Conc. 23.0	CCVs Percent Recovery	Percent Recovery Limits 90 - 110	Date Analyzed 2009-09-03
mg/L	25.0	23.0	92	90 - 110	2009-09-03
	Date Anal	lyzed: 2009-0	09-03	Anal	yzed By: JR
F	Γ rue	$\begin{array}{c} {\rm CCVs} \\ {\rm Found} \\ {\rm Conc.} \end{array}$	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
		22.6	90	90 - 110	2009-09-03
	Date Anal	lyzed: 2009-0	09-03	${ m Anal}$	yzed By: JR
	True	$\begin{array}{c} { m CCVs} \\ { m Found} \\ { m Conc.} \end{array}$	CCVs Percent Recovery	Percent Recovery Limits	$egin{aligned} ext{Date} \ ext{Analyzed} \end{aligned}$
m mg/L	5.00	4.54	91	90 - 110	2009-09-03
	Date Anal	lyzed: 2009-0	09-03	Anal	lyzed By: JR
		${ m CCVs} \ { m Found}$	$rac{ ext{CCVs}}{ ext{Percent}}$	Percent Recovery	Date
Units mg/L	$\frac{\text{Conc.}}{25.0}$	Conc. 22.9	Recovery 92	Limits 90 - 110	Analyzed 2009-09-03
	$\frac{C}{g/L}$ $\frac{C}{g}$	$\begin{array}{c} & \text{CCVs} \\ & \text{True} \\ & \text{Conc.} \\ & \text{g/L} & 25.0 \\ & & \text{Date Anal} \\ & & \text{CCVs} \\ & \text{True} \\ & \text{Conc.} \\ & \text{mg/L} & 5.00 \\ & & \text{Date Anal} \\ & & \text{CCVs} \\ & & \text{True} \\ & & \text{Corc.} \\ & & \text{Units} & \text{Corc.} \\ & & \text{Corc.} \\ \\ & & \text{Corc.} \\ & & \text{Corc.} \\ \\ \\ & & \text{Corc.} \\ \\ \\ & & \text{Corc.} \\ \\ \\ & \text{Corc.} \\ \\ \\ \\ & \text{Corc.} \\ \\ \\ \\ & \text{Corc.} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

Standard (CCV-1)

Flag

 Param

Sulfate

QC Batch: 63678 Date Analyzed: 2009-09-17 Analyzed By: KV

 CCVs

 ${\rm Found}$

 ${\rm Conc.}$

22.5

 CCVs

Percent

Recovery

90

Percent

Recovery

Limits

90 - 110

Date

 ${\bf Analyzed}$

2009-09-03

 CCVs

True

 ${\rm Conc.}$

25.0

Units

mg/L

Report Date: October 1, 2009 Work Order: 9090320 Page Number: 80 of 80

HELSTF Diesel Spill Groundwater

Tiddiff Diesei Spin Groundwater							
			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Total Organic Carbon		mg/L	50.0	51.5	103	80 - 120	2009-09-17
Standard (CCV-2)							
QC Batch: 63678		Date Analyzed: 2009-09-17			Analyzed By: KV		
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc.	Recovery	Limits	\mathbf{A} naly zed
Total Organic Carbon		mg/L	50.0	50.9	102	80 - 120	2009-09-17
Standard (ICV-1) QC Batch: 63681		Date Analyzed: 2009-09-17			Analyzed By: KV		
			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	Analyzed
Nitrate and Nitrite as N		${ m mg/L}$	0.200	0.205	102	85 - 115	2009-09-17
Standard (CCV-1)							
QC Batch: 63681		Date Analyzed: 2009-09-17				Analyzed By: KV	
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
To	T-11	TT 1.	~	~	ъ	T	

Param

 $\overline{\text{Nitrate and Nitrite}}$ as N

Flag

 Units

mg/L

Conc.

0.200

Conc.

0.188

Recovery

94

 ${\rm Limits}$

85 - 115

Analyzed

2009-09-17

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CO REMARKS PLEASE SEE ATTACHED ANALYTE LIST FOR DETAILS 5.5 6.9 VOAS - LS 43635704 なのしとう ので S REPARENTAL STREET, FOR THE STREET, S ANALYSIS REDUEN ED REDELLER REDENTINE ZEFE SUDI SSIO Melals 3310 mas sleteM letoT A SECTION 9 NO. OF CONTAINERS REBURE SERVICE CONTRACTOR 36068 LANG ME 4. KELSONKELK CRIM ED NAME である。 **P**新工匠区 1835 HISF-0154-DRMI-016-0809-ms/ms/l GCODICONDITIONSCHILLET TOR B OF CONTRIBE CHAROLEGISTON SELS COMPORTOR RECOLD 公司的和中国 SAMED PROJECT MARKE FROJET INFORMATOR SAMPLESSEMILE 300 PROJECT MANAGER SHIPTED IN RO Lab Comer Brad Davis PROUGH RO 60-1-6 LATE

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